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XIX

European Seminar on Extension Education

Theory and practice of advisory work in a time of turbulences

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Jointly organised by
Faculty of Agriculture, University of Perugia
and
INEA – Istituto Nazionale Economia Agraria

THEORY AND PRACTICE OF ADVISORY WORK IN A TIME OF TURBULENCES

Proceedings

Edited by:

Chiara Paffarini and Fabio Maria Santucci

The editors do not bear responsibility for the quality of the English language used by some Authors

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FOREWORD AND ACKNOWLEDGEMENTS

Fabio Maria Santucci - University of Perugia, coordinator of the Organizing Committee.

The XIX European Seminar on Extension Education comes back to Italy, after 26 years, and takes place in Santa Maria degli Angeli (Saint Mary of the Angels), near Assisi, in Umbria, the green heart of Italy.

The title of the Seminar “Theory and practice of advisory work in a time of turbulences” underlines that the farmers, as well as the processors, the traders and the consumers, live in a difficult period, full of doubts and anxieties, but the location, and the spirit of this beautiful place, invites us to believe that a better future is possible.

From this place, about 900 years ago, Saint Francis of Assisi ignited a movement that still today, all around the world, preaches simplicity, altruism, cooperation, mutual understanding among peoples and among religions. Saint Francis, the tradition says, was able to communicate even with animals, and birds stopped their singing to listen to his words. By using today’s concepts, he was an ecologist, and in his “Cantico delle creature” he praises the Lord for the beautiful world we live in.

Assisi is, even today, a place where inter-cultural and inter-faith dialogues take place constantly, affirming calmly and strongly that only mutual respect can allow peace to exist and to expand.

Every year, tens of thousands of people, young and old, from all parts of the world, gather for a joyful and colourful march from Perugia to Assisi to call for Peace on Earth, and to remind the world of the obligations that developed countries own to the developing ones, as well as to remind policy makers of their duties towards the people they govern.

Peace, and with it justice, legal and social, is the cornerstone of any type of really sustainable social and economic development.

With our Seminar, we do not pretend to achieve such an ambitious goal, but surely extension education, in agriculture, home economics, natural resource management, family planning, just to mention a few of its applications, contributes to a better quality of life and livelihood in developed and developing countries alike.

The first European Seminar, as many surely already know, was held in 1973 in Finland, when European agriculture was evolving into an industry of managed businesses, and extension services were changing from practice based on experience to professional consultation based on innovation and communication theories. The seminar gave a first opportunity to exchange ideas and experience among university staff and private and professional personnel concerned with Extension Education. In those years of economic development, the role of agriculture was still perceived to be that of a supplier of food, timber and textiles. Very few people perceived the problems linked with the industrialization of agriculture: loss of biodiversity, pollution, and rural desertification -- these were issues still largely ignored.

The seminars have continued each other year, in different host countries. The last ESEE was organized in Prague in 2007. During the 36 years of the Seminar history, the number of participants has increased from 35 to over 100, representing almost 30 Countries (including many outside Europe) and the presented papers from 4 to the present almost one hundred.

Recent themes have included: Rural Extension and Training/Education as the Missing Elements in Rural Development Projects (2003), Towards a Participatory and Multi-Actors Extension System (2005), and Supporting Viable Rural Communities (2007).

This year's theme, chosen two years ago when we started this adventure, is "Theory and practice of advisory work in a time of turbulences": with such words we want to stress the continuous and beneficial relationship between theory and practice, between university researchers and advisory professionals, between those people who teach at higher education level, with those who implement the theories, and always provide useful feedback, for further improvement of knowledge and action.

In the last few years, we have experienced, at world level, an unprecedented series of contemporary and interlinked problems. The climate change is something that nobody disputes anymore. But we and the farmers do not know where such change will lead our production systems. The competition for water is increasing everywhere. There are crops which could become unfeasible, while other ones could be introduced where they were never cultivated before. The energy crisis – and the policies of some governments – have diverted large quantities of cereals and huge tracts of land for the production of bio fuels. This has given opportunities to many farmers, but has also contributed to ignite an incredible price increase which has negatively affected the consumers. Then the global economic slow-down has cooled down the growth of many economies, and consequently the demand for some commodities has fallen, sharply. Prices are down, again. But they could rise later on, this year or tomorrow. Consumers are more and more health conscious and environment friendly. There is an increasing demand for safe and healthy foods, seriously certified by third parties. The certification issue is a growing problem, especially for small producers, and for those operating in developing countries. Within the European Union, local and national governments are implementing the 2007-2013 Rural development Plan, which provides funds for investments, at farm- and post-gate level, and which guides towards diversification, integration, modernization. Similar policies are implemented by our neighbours who are converging to become EU members in the near future.

The XIX ESEE focuses on the organizational aspects, as well as on the contents and on the methods and media which today characterize the work of the advisors in our countries. The Seminar has provided opportunities for theoretical and applied debates, as well as it has allowed delineating the present situation of extension education in our countries and worldwide.

For the first time since 1973 an international Scientific Committee has been set up, composed by distinguished friends, who have volunteered to support the Italian organizers, in the selection of the themes and in the articulation of the sometimes tiresome process of paper review. More than 100 proposals have been received, and each one of them has been read and commented by all members. About 20 were not accepted, because their subject was not considered coherent with the Seminar and the authors have received a personalized email indicating better options. About 20 have been accepted as poster presentations, while the balance has been accepted for oral presentations, divided into the three sub-themes.

The debate around each topic has been guided by one or two facilitators, and for each topic a final document or statement has been produced by the participants. The three documents have merged into the final declaration of the Seminar, which will be transmitted to all concerned stakeholders.

The sub-themes of conference cover the following three topics:

Theme 1: Institutional aspects of advisory services. During the last 25 years, the task of advising farmers and other categories of persons (youth, women, and rural inhabitants in general) has been gradually transferred from centralized Governmental Ministries to lower levels of governance (Regional Governments, Provincial Governments, Districts, etc.). Another move has been that of contracting out advisory work to autonomous semi-public entities. In other cases, the advisory work is performed by Civil Society Organizations (CSO), such as cooperatives, farmers' associations, by specialty producing associations (such as the Geographical Indications - GI) or by the Local Action Groups. Demand-led extension and participatory extension have become common key words. The planning, financing and evaluation of extension activities have also changed. Finally, in most countries, advice to producers is sometimes provided by agents employed by input suppliers, output processors, traders, etc., and by free lance independent consultants, quite often highly specialized.

Theme 2: Contents. For several decades, the contents of farm extension have largely been technical innovations, for the increase of production and the reduction of costs. Later on, farm management aspects, home economics, youth, marketing, rural development and other contents have been added. When the environment became an issue, extension became a policy instrument to achieve green targets. Within the EU, all information concerning access to subsidies, environmental obligations, etc. has become very relevant. Co-creation of knowledge and participatory development require facilitators and animators. Such evolution has led to different sorts of advisors (generalists and specialists, technical and socio-economic advisors) and may impose different ex-ante curricula and more continuing education.

Theme 3: Methods and media. Since their beginning, agricultural advisory services have used various means and methods available, e.g., meetings, leaflets, demonstrations, and posters. Telephone, radio and TV have made available more powerful mass communication media, to send, exchange and receive information. Modern ICTs have been developed and the world has become smaller and faster, at least where such technologies are available and not too expensive. Not only two way transmission has become faster, but also knowledge co-creation. However, the use of ICTs, even in developed economies, is not homogeneous and the technological divide does exist even in rich countries. At the same time, old tools of the profession, such as demonstration days, open days, meetings and training courses, leaflets and handbooks remain in use.

The participants in the Seminar agree that the advisory work, no matter the form of agency providing this service, is a relevant component of the agro-food system and that its effectiveness is crucial for the progress of agriculture and for an holistic rural development.

The XIX ESEE has been made possible thanks to the generous collaboration with INEA, the National Institute of Agricultural Economics, and with the support of the Fondazione Cassa di Risparmio di Perugia, and of the Chamber of Commerce, Industry, Agriculture and Handicraft of Perugia. The Faculty of Agriculture of Perugia has ensured technical support, while other institutions, such as the University of Perugia, the Italian Society of Agricultural Economics, the Regional Government of Umbria – with special reference to the Department of Agriculture, have provided assistance to the ESEE Organizing Committee.

Most than all, I have to thank the members of the Scientific Committee and of the Organizing Committee – listed in the next pages, for their incredible effort and dedication. An action which has started almost two years ago and that sees its achievement with the publication of this volume and of the addendum. Volunteers and other generous individuals have helped the local staff and contributed greatly to the organization of the conference, unstintingly offering their young energies to ensure the best outcome for the XIX ESEE in Santa Maria degli Angeli, Assisi.

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THROUGH HISTORY OF EXTENSION TO UP-TO-DAY OPEN QUESTIONS

Roberto Volpi – Former Director of Centro Studi Agricoli “Borgo a Mozzano”, then Associate Professor of University of Cassino, Italy.

Keywords: History of agricultural extension, institutional evolution, privatization.

1. Introduction

Agricultural extension, a combination of research, training and advisory work, was born in the middle of the XIX century in Europe when the industrial revolution begun to offer new possibility to improve the production, the labour productivity and the agricultural population income. At this time the primary sector gave the higher contribute to the GNP and had huge potentiality to grow up.

The first institution absolved this function was the Agricultural Academy, present in many countries and supported by land owners and farmers leaders.

After the research centres and the agricultural schools for young farmers established every where in the old continent and in USA. I would like to expose some reflections on the evolution of this instrument of modernization and development in the last hundred and sixty years.

2. Main approaches to extension in Europe in 20th century – From Itinerant Teaching Post to Farmers Co-ops

In turn of XIX and XX centuries, the majority of active population was working in agriculture. To introduce the new techniques three different approaches were undertaken.

- German model, where research, experiments, education and advisory work were treated together, organised on the school base and became a focal point of agricultural development;
- Danish model, where the advisory services and vocational trainings were provided by farmers' associations;
- The third model, where research, education, vocational trainings and advisory services are carried out separately, and stay under control of more than one sector (e.g. Ministry of Agriculture, Ministry of Education, Ministry of Science and Scientific Research, Ministry of Industry etc.)

The more advance and efficient appeared the USA co-operative agricultural extension service, created inside state universities around 100 years ago. Up to now it represents a significant force driving American agriculture to be more and more efficient. In Europe, it has been adopted only in Scotland.

In Italy, in 1870 the Cattedre Ambulanti (Itinerant Teaching Post) were established – an institution created locally by banks, land-holders, public institutions for farmers' training and advisory. After few years, this institution begun to promote the idea that farmers had also to take charge for production, sale and distribution of the means of production. Following this idea, many farmers' co-operatives we established in whole Italy, producing and distributing machineries, farm equipment, seeds, fertilizers, pesticides, feedstuff etc., and giving technical support to producers. Thanks to this success, in 1890 a holding of co-operatives (Federconsorzi) was created. In the middle of 20th century the Federconsorzi had 50% of the total Italian agriculture input market, 5,000 stores and over 2,000 consultants available for member farmers and clients. This example, not well known out of Italy, is an interesting and very successful model similar to Danish model of extension service.

After 1929 world crisis, in UK the marketing board institutions were established. Their functions were also research and advisory. Later on ADAS was set up, which followed this approach. Some examples of success of marketing boards we can find in Europe as well as in New Zealand. In Italy – Ente Risi, Milk Marketing Board in UK, Kiwi Marketing Board – in New Zealand.

While the public extension institutions were growing up, a new kind of agencies appeared. The chemical, the mechanical and the seeds companies begun to create their own agencies to promote and sell their products to the farmers. Later, food processing companies established their own staff to elaborate farming contracts for crops and animal production, offering extension and technical assistance.

After the second World War, two new models of extension were developed. In France, where groups of farmers created co-operatives to employ full-time business consultants (CETA and GVA) and receiving public financial support, and in the Netherlands, where co-operatives selling flowers and veggies also delivered technical assistance to their members.

3. Public and private extension

Some tendencies have to be underlined in the last fifty years:

1. In according with the last censuses done by the Wisconsin University and FAO, in 1980 over 350.000 agronomist consultants were in a pay-roll of the public advisory institutions. At present such information are not available. In the last decade, the personnel of advisory institutions has been reduced, for economic reasons and for their modest efficiency level in relation to the private consultants;
2. In some European countries (UK, the Netherlands) and Australia, public advisory institutions, thank to their high efficiency, have been privatized, and the farmers are paying for advisory services;
3. The commercial and technical industrial diffusion agencies improved with higher rate than public, even if there are no information about the private sectors. Some appraisals permit to estimate that the technical personnel, in countries with advanced economy, is three or four times bigger then public (we can suppose there is one million of private advisors and consultants at work). Their contribution to the innovation diffusion is clearly prevailing. However, in the last two decades inside this sector a decline of technical personnel in commercial agencies has been noticed, whereas the food processing companies are still expanding their staff;
4. Mass media, fairs, exhibitions and technical magazines play more and more important role in the diffusion of patented innovations;
5. Producers can receive technical assistance and consultancy through Internet websites and distant learning. The input and food processing industries, the agricultural institutions, including research centres have developed permanent and intensive links with farmers;

This evolution – pointed above – is strictly correlated with huge changes occurred inside the agricultural sector:

- The number of farmers, particularly in countries with advanced economy, is declining tremendously. The size of farm is growing. The labour productivity and income had a huge increase achieving the same level than other sectors;
- Farmers, to reach higher efficiency and to improve incomes, are relying on the horizontal and vertical integration, are diversifying or specializing. Many functions (logistic, marketing, information system, mechanical operations) are externalized , mainly with associated approach, to reduce the fixed costs;

- Commodities producers are cutting permanently the cost of production, improving at the same time the quality, specialities producers are doing more marketing investments to reach monopolist position and to convince the consumers to pay higher prices;
- Protectionism and financial supports to farmers are ending because too expensive for tax-payers and consumers, and the liberalization of international trade will involve finally the agricultural sector. Higher competitive scenario will be imposed at world level;
- The farmers, as agri-business firms, are entrepreneurs and they need bigger amount of information to plan production, for the budgeting, to innovate, to invest and to remain in the market;
- In the last 50 years, intensive farming was developed thank to protectionism. The negative environmental effects led the majority of the world governments to introduce the new sustainable system to preserve the natural resources for future generations;
- There are still many small family farms, mainly concentrated on less favoured areas (hills and mountains) that are carrying out the important function to preserve the natural resources and landscapes. To improve their income it is necessary to diversify activities and to create new jobs.

4. Statements and open questions

Let me expose few obvious statements:

1. Agricultural extension, research, education, vocational training and advisory work have to consider present farmers needs and to anticipate the future ones.
2. To cover farmers needs fully and in-time, extension institution should be managed with the participation of farmers.
3. To better understand the market signals, to adopt product and process innovation, to rationalise production, to do new investments, farmers need more and more information. They have to be collected, selected and elaborated, to be useful for strategic and tactic choices.
4. In advanced economies, the goals and requirements of professional farmers are completely different than small family holders. This fundamental principle has been accepted only in few countries, as e.g. Denmark and Netherlands, where there are two different institutions giving vocational training and advisory service for two different groups of farmers.

Summarising, let me advance few questions for discussion:

1. To improve the quantity and quality of information at reasonable cost for farmers or tax-payers, Internet can be an extremely useful tool for extension services. The question is: how to use it to be more successful in extension?
2. Taking under consideration the growing cost of support the four fundamental functions of extension, the questions is which – private or public extension – can offer better services, today?
3. For sustainable agriculture, focussed mainly on extensive cultivation system, is there equilibrium between demand and supply of innovations? And are the innovations really available for farmers?
4. In terms of innovations, it is important to notice three sectors – the private agencies diffusing innovations, which are under control of producers and/or distributors of input, the food processing consultants, and the free-lance business consultants. In this contexts, there are two questions: What is the role of these three sectors in diffusion of innovations? And is there a possible conflict in this field between them?

5. The public extension agencies in many parts of world are under the process of privatisation, and farmers need to pay for advisory service. Can this circumstance to be an obstacle to develop a more sustainable agriculture?
6. The small farm-holders in rural area need external supports to create new jobs improving family income, and exploiting local resources. The best approach seems to be integrated acts – educational programs, intensive advisory service, and financial support to develop rural infrastructure and social capital. Consider the last research effects, the public or farmers extension service are success, when they are involved into EU programs focussed rural development. Can these goals be achieved out of EU intervention policy in this field?
7. Following above statements and questions, what model of extension is the best for Europe – USA co-operative extension or Danish?

ITALIAN AGRICULTURAL EXTENSION SYSTEM: OLD ISSUES AND NEW IDEAS

Anna Vagnozzi - National Institute of Agricultural Economics.

1. Introduction

Italian agriculture needs a well organized system of services, because the gap between the profitable and non profitable farms is wide and the risk that a large portion of the latter ones comes out of the market and close their operations is very high. This situation has been considered in a positive manner until some years ago, but now, in a time of turbulences, maintaining jobs is a very sensible issue.

The agricultural knowledge system in Italy consists of two parts, very different for their objectives, methods and evolution: the complex organization connected with the firms that produce fertilizers, seeds, chemicals, animal feeds, human food (and so on) and the system of public services for farmers, connected with national and regional institutions for agriculture.

The components of first group have the principal objective to keep / expand their market share, while the second group wants to promote the development of agriculture and rural territories. Both try to respond to the farmers needs concerning: innovative or more rational product processes, improving agricultural products, decreasing costs and also lowering agriculture impact on the environment. The first group has two types of bonds: internal - preserving their own gains, external - respecting the European and national laws and rules etc.; the second group is a policy instrument that, especially now, has to promote both the growth of farmers income and the demand of the society to reduce the pollution and to improve food safety.

These “sections” of Italian agricultural knowledge system are separated and, seldom if ever, worked together; traditionally there is not a strong relationship between them; the private sector believes the public sector is wasteful and ineffective, the public one thinks the private takes advantages of the good faith of farmers.

In Italy, there is another group of organizations that supplies services to the farms: the farmers’ professional associations (trade unions or agricultural products associations) that are private bodies, but they often work connected with public institutions or with the public funding. In the last years the agricultural products associations, that have the main task to organize the production for the marketing, supply technological and economic services to their partners, asking them to pay a contribution for the costs. Among these associations, the most active are fruit/vegetable and breeder associations.

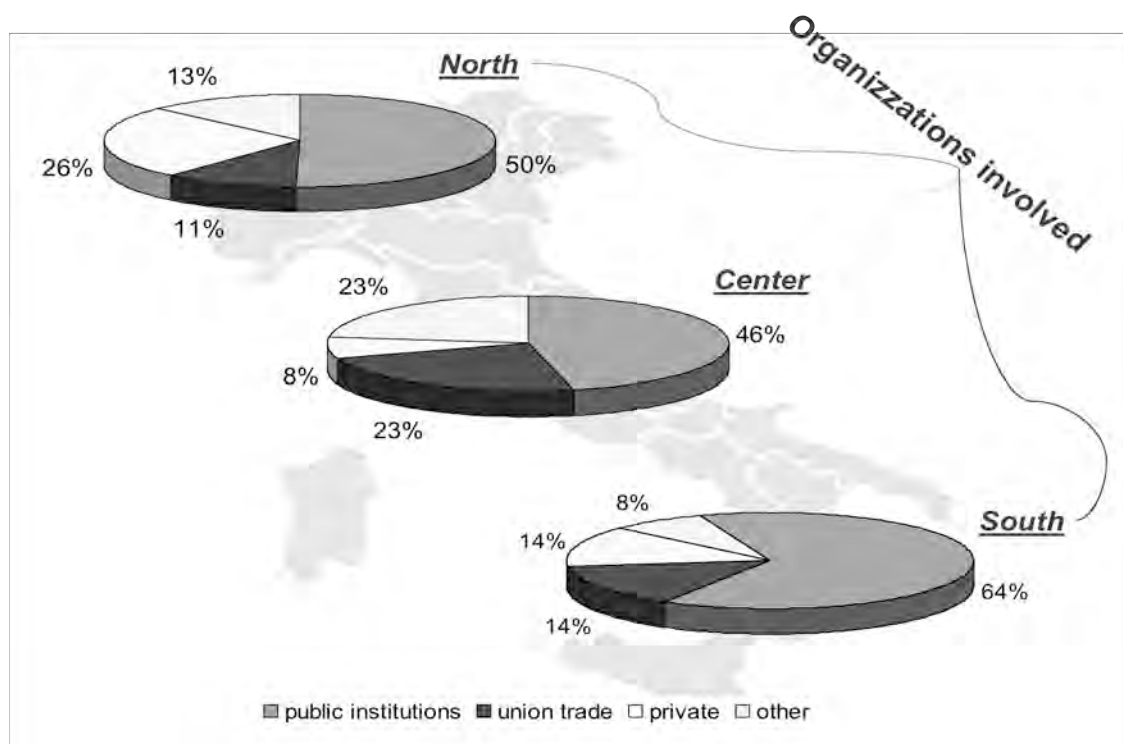
Many experts affirm that the development of Italian agriculture, from the Second World War to the Seventies, depended on the private firms that introduced the innovations among the farmers and induced the productions’ increase and the bigger use of technical inputs (fertilizers, machines etc). It is true, but also the public bodies, alone or through the agricultural trade unions, worked very much to improve the technical and economic culture of the farmers and, when the European policy became more complex and more difficult to implement, they have supported the farmers to approach the new issues about environmental impact, food quality, labour safety, etc. A question open for discussion for the public system of services is the commitment to help the farmers who are in an intermediate position: these farmers have to change their strategy to start up a more profitable economic activity, but they are reluctant in using the private advisors, because they are very expensive. This commitment, towards the small producers, is put into practice only by a few public organizations, located randomly on the national rural territory.

This paper will focus the attention on the public initiatives to improve the extension and adult vocational training in Italy in the last 15 years, underlining the main types of organization, fields and methods; the evolution of the last years; the actual issues and new proposals.

Since 1988, the National Institute of Agricultural Economy has a study group specialized in the agricultural services (in the first period) and the agricultural knowledge system (in the last period). This research group is the reference for many public institutions, for the Ministry of agricultural policy and for many Regions, because it alternates research activities with initiatives of support to the public administrations. By doing so, the general and theoretical questions can be checked inside the real situations and the activity of support becomes an important case study where it is possible to verify: the relationships between the different components of rural system of services; the needs of the farmers, of the technicians, of the public officers; the characteristics of the different kinds of agriculture and rural territories.

2. Extension and adult vocational training

In Italy, agricultural extension and applied research have a long tradition, briefly illustrated by Santucci (1994) and Volpi (1994). More recently, the annual Conference of the Italian Agricultural Economists Society was devoted to analyse the complex system of services (Carrà 2001). Since 1972, almost everything concerning agriculture is responsibility of the Regions, the public institutions that implement European policy, promulgate legislation and fund the main agricultural bodies. Then, the offer of public services for farmers is managed by Regions. The first consequence is that there are almost 20 different organizations for the system of extension and adult training. All Regions have their own legislation in this field and independently distribute the funds to the different organizations. Nevertheless, is possible to identify some common choices about the kind of involved bodies, the activities that are promoted, the farmers' involvement and, in short, to sum it up, the policy objectives.



According to the graph, the Northern and Central Regions involve the same number of private bodies and public institutions,¹ while the Southern Regions involve more public institutions (64%). Compared to the '90s, the situation has changed, in fact another survey emphasizes a major involvement of the public organization both in Northern and Southern Regions. Another aspect to highlight is the type of NGOs and private bodies that are involved; the organizations connected with agricultural trade unions are decreasing, in favour of the agricultural products associations or/and groups of private advisers.

With regard to the public institutions, it is interesting to note that the political and administrative institutions have no technical tasks, but only role of direction and coordination. Instead, there are some technical structures, the agencies of agricultural services, that are increasing their importance. Usually they deal with and manage some technical supports, like the meteorological networks, the chemical laboratories, multimedia initiatives etc. and they employ specialized staff. Often these agencies are delegated by the official agricultural institutions to manage the funds to realize the calls for tender and to choose the firms able to supply the extension service to the farmers.

The main fields of extension service funded by public institution are: very specialized technical supports (33%), basic extension services (32%), specialized extension services (14%), information services (6%).

EXTENSION SERVICES CLASSIFICATION

First level services (target: farms and local territories)

a. Information a1. Technical magazines a2. Fairs and exhibitions a3. Conferences and seminars a4. Other	b. Basic and local services b1. Cultural activities b2. Basic farm advice b3. Technical advice b4. Marketing advice b5. Customer advice b6. Other	
c. Advanced level support services c.1 Network of environmental monitoring c.2 Specialized supports c.3 Marketing promotion c.4 Networks, data base and multimedia c.5 Other	d. Product specialized services d1. Test d2. Technical advice d3. Marketing advice d4. Farm advice d5. Other	e. Managerial services e1. Accounting e2. Managerial and financial advices e3. Support to implement policy e4. Other

Second level services (target: technical organizations)

f. Planning and management advices g. Analysis of innovation demand h. Other
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The first two fields are very traditional services in Italy. The technical supports are those activities that collect and process data useful to the agricultural processes, by advanced level technical instruments (for example the

¹ The information that are used in this paragraph is collected in a research (2004 -2006) of the Interregional program "Agricultural development services" funded by the Ministry of agricultural, food, forestry policy; the results regarding the northern regions overestimate the number of public institution because they don't include the situation of Emilia Romagna, the region that has chosen to fund only private bodies .

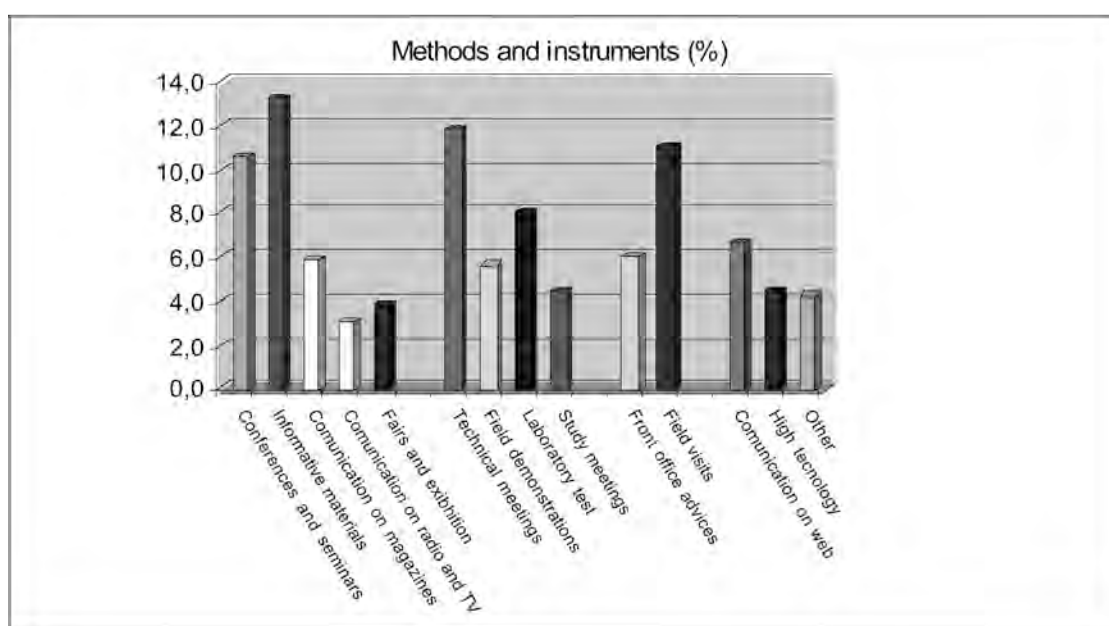
meteorological networks and chemical laboratories). They usually are funded by the public institution, because they have the high investment costs and the extension organizations can not to afford them. In reality, they are very expensive also for the public, but now they are not put in discussion since these technical supports are very useful for the surveys on the environmental impact or the food quality and safety.

The basic extension is a kind of all-purpose assistance for the farmers, that nowadays is useless because the farms are often specialized and they need expert advice.

However, taking account of all Regions, the field of interest for the public supported extension is very broad and varied and, as the following pattern shows, they have needed a complex system of classification to include everything.

Regarding the methods and instruments used by the technicians to advise the farmers, they are numerous and different for typology. It is possible to collect them into four groups: information activities, advice for small groups, individual advice, multimedia and high technology.

The most used communication channels are very traditional: informative materials (13.3%), technical meeting (11.9%), field visits (11.1%). However, there are some other methods, like seminars (10,7%), laboratory tests (8,1%) and communications on web (6,7%) that are connected with aspects more technological and scientific and that can be consider more innovative.

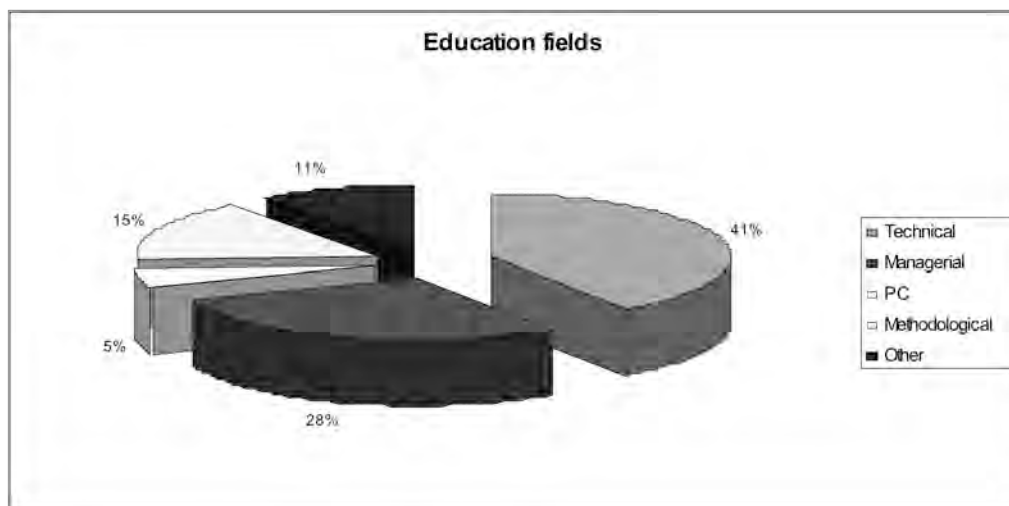


Regarding to the vocational training for farmers, the funds independently managed by the agricultural public institutions are connected with the rural development European policy. The main fields of the educational activities are technical and managerial issues; it is interesting to note the increasing importance of methodological issues.

The participants in such training programs are especially the farmers (48,3%) and the technicians (31,9%). Jobless individuals and consumers are not present, because the European funds for agriculture define the beneficiaries very rigidly.

3. Issues and proposals

According to the information and data resulting from the mentioned research, the regional institutions² invested a large amount - more than 350 million €, an average of 4,3 million € per region per year - for the Italian agricultural extension system between 2000 - 2004. However, this amount was lower than in the previous five years (about the half), with respect to both nominal and actual value³.



The real issue of Italian extension system is that the commitment of the public institutions is not continuous, since it is conditioned on the availability of the European funds, especially those attributed to rural development. For example, in the period 2000-2006, the European policy neglected the advisory activities and many Regions did not replace the European funds with their own funds. They only assured the functioning of the public structures and the basic services.

This situation does not allow a structural flow of resources to the system, especially with regard to the management and the organization of bodies offering specialized services to the farmers. The result is that the agricultural extension system is characterized by a high turnover of personnel, low specialization of firms, continuing changes of the administrative procedures.

Another relevant question about the Italian agricultural extension system is the lack of coordination with respect to the development policy for rural territories. The paradox is that the rural development policy funds the advisory services, but it disregards them and the extension and vocational training system operates with their own specific objectives, not always consistent with the political goals.

The new age of the European agricultural policy could be a chance to resolve this old Italian matter, because the current funds for the farm advisory system (FAS), provided by the rural development European regulation (Reg. EC. 1698/2005), intend to promote “cross –compliance”. This means that these funds are committed to support the farmers adapting to the European laws on environmental impact, soil erosion, animal well-being, food safety, labour safety. De facto, this rule connects the FAS with the new European political aims.

However, another purpose of European policy is “... to help farmers and forest holders to meet costs arising from the use of advisory services for the improvement of the overall performance of their holding ... ”(art. 24 Reg. EC 1698/2005).

² The research involved 16 Regions: Abruzzo, Basilicata, Calabria, Campania, Friuli V. G., Lazio, Liguria, Lombardia, Marche, Piemonte, Puglia, Sardegna, Sicilia, Toscana, Umbria, Veneto.

³ INEA survey – European operative programme on Italian extension service 1994-1999

Furthermore, the Italian agricultural extension system has to implement also more traditional activities and instruments with the goal of farm's competitiveness.

In my view there are two directions to undertake: the promotion of expertise and the improvement of the governance processes.

In the first case, it is necessary to give more stability to the public intervention. It is important that the bodies (professional associations or private organizations or technical public institutions) that want to operate in this field can have a long time prospect, to organize their structure, to specialize the staff, to promote the evolution of methods and media and, in short, to develop a network of organizations with a real expertise about the agricultural extension and adult training.

At the same time, the policy makers would have to plan the actions of advice and support more clearly, declaring the needs of the rural territories and of the farmers, identifying specific aims, applying a reliable monitoring and value system.

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VOLUNTEERISM IN AMERICAN EXTENSION SYSTEMS: PEOPLE, PROCESSES, PROBLEMS, AND POTENTIAL

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Keywords: Volunteerism, volunteers, management, trends, potential.

1. Introduction

The need and demand for human services in American communities continues to grow, especially in light of the recent economic slowdown globally. Although current federal and state fiscal deficits and resulting cutbacks in human and community service programs have increased demands on state and local governments to assume responsibility for a wider range of human and community service programs, resources are limited at all levels of government. Local governments have neither the mandate nor the resources to provide the levels of services necessary to alleviate social problems. Only through grass-roots participation will human and community service agencies and not-for-profit organizations successfully identify and address the issues facing urban populations.

To maximize local human and financial resources, it is vital to encourage local citizens to become involved in the provision of human and community services. Beyond these services, there is a need to involve adult volunteers in the many and varied activities that contribute to the quality of community life.

Ellis and Noyes (1990) concluded that since the Colonial period in the United States, "the individual and combined volunteer actions of thousands of unnamed citizens have had an impact on American society" (p. xi). Park (1983) suggested that "the heart of volunteerism is the countless individual acts of commitment encompassing an endless variety of . . . tasks" (p. 118). Although functional definitions of volunteers are as varied and contrasting as the volunteer roles themselves, a unifying operational conceptualization may be ascertained by three universal criteria defining a "volunteer": 1) volunteerism implies active involvement and not mere financial/material philanthropy; 2) volunteerism is a self-elected behavior relatively free from external coercion; 3) volunteers do not seek financial remuneration, although Brudney (1990) noted that some organizations "allow that [volunteers] may receive partial subsistence remuneration and/or reimbursement for out-of-pocket expenses" (p. 3); and 4) volunteerism is directed toward improving the common good rather than benefiting solely the individual volunteer or his/her family. More succinctly, Safrit, Smith, and Cutler (1993) stated that a volunteer is anyone who contributes time, energies, or talents to an organization and is not paid by the organization's funds.

It deserves space in this discourse to distinguish between two distinct forms of volunteerism, both of which meet these definitional criteria (Jalandoni & Hurne, 2001). "Informal" volunteering is that which is performed by an individual or group (with other than familial connections) on their own accord, with no connections to a formal organization or program (whether public or private). "Formal" volunteering is that which is performed under the auspices (i.e., initiation, direction, support, etc.) of a public or private organization, agency, or program. Thus, the phenomenon of informal volunteerism permeates most human societies wherein members of a mutual beneficial group (including both familial and non-familial) consciously elect to perform tasks benefiting other group members. Formal volunteerism, however, is largely of American origin and may be traced back to 1736 and the first formal all-volunteer fire department in Philadelphia (Ellis & Noyes, 1990). Today, however, formal volunteerism also permeates contemporary societies globally.

While most individuals believe that volunteerism is a purely American phenomenon, in actuality it is based upon old-world historic tenets of Judeo-Christianity (Ellis & Noyes, 1990). The Catholic belief in *caritas* encouraged

church members to care for less-fortunate individuals outside of their own immediate families. The concept continued within the Protestant revolution (albeit not called as such) and crossed the Atlantic to the New World.

In Colonial America, informal volunteerism (i.e., volunteerism by individuals that is not conducted under the auspices of any formal social organization or institution) manifested itself as communal barn raisings, corn shucking bees, and quilting bees. The first formal American volunteerism (i.e., organized and conducted under the auspices of a formal social organization or institution) was probably Boston's volunteer fire department that was organized by Ben Franklin. However, the golden era of American volunteer-based non-profit organizations began with the founding of the American Red Cross in 1881, and has continued for 121 years since.

2. The Effective Management of Contemporary Volunteer Programs

The effective management of volunteer resources is an even still younger phenomenon. Marlene Wilson is recognized as the founder of the volunteer resource management profession with the publication of her 1976 classic book, *The Effective Management of Volunteer Programs*. For more than three decades, authors, researchers, and practitioners have strived optimistically toward a vision of expanded volunteer engagement in community programs in both the United States (Boyd, 2004; Collins, 2001; Hange, Seevers & VanLeeuwen, 2002; King & Safrit, 1998) and other nations (Chizari, Lindner, & Karjoyan, 1999; Shahbazi, 1993; Stedman & Place, 2004). Chizari, Lindner and Karjoyan (1999) suggested that the absence of volunteerism was a critical factor between successful and unsuccessful educational organizations in non-Western nations. Jackson, Kirkwood, Asante-Ntiamoah, and Armstrong (2002) concluded that the availability and mobilization of volunteers should be considered by community-based organizations developing international educational programs. Stedman and Place (2004) concluded that "In order to more efficiently, more effectively utilize volunteers in international . . . development we must develop an understanding of how organizations use, train, and perceive volunteers in their organizations (p. 147) . . . The concept of globalization intends that we make attempts to provide global experiences for all: faculty, students, extension agents, and volunteers" (p. 148). However, little empirical research investigating volunteer management competencies among volunteer administrator populations exists.

Numerous applied researchers have sought to further clarify the necessary competencies for today's managers of volunteers, focused primarily upon U.S. contexts. Recognizing the importance of volunteerism in today's public classrooms, Harshfield (1995) investigated the perceived importance of selected volunteer management components in western U.S. schools. King and Safrit (1998) investigated the importance and competence of selected volunteer management components for Ohio 4-H Youth Development agents. Based upon King and Safrit's study, Collins (2001) explored Michigan 4-H Youth Development agents' perceptions of the importance of and competence with selected volunteer management components. Hange, Seevers, and VanLeeuwen (2002) studied U.S. 4-H agents' perceptions and attitudes towards their competency levels with selected volunteer management functions. In a qualitative Delphi study of Cooperative Extension administrators and volunteerism specialists across the country, Boyd (2004) identified competencies that will be required by volunteer administrators as they lead organizations over the next decade.

Most recently, Safrit and Schmiesing (2004, 2005) and Safrit, Schmiesing, Gliem, and Gliem (2005) utilized a mixed-methodology with volunteer consultants and practitioners in the United States to develop the P.E.P. (Preparation – Engagement – Perpetuation) model for volunteer administration. The three domains of P.E.P. encompass seven focused professional competency topical areas of: Personal Preparation: Professional Development; Volunteer Engagement: Volunteer Recruitment and Selection, Volunteer Orientation and Training, Volunteer Recognition, and Program Maintenance; and, Program Perpetuation: Resource Development and Program Advocacy. Ultimately, each domain topic area encompasses specific professional competencies based upon fundamental knowledge, skills and attitudes that are the fundamental foundation of effective contemporary volunteer resource management.

3. Current Trends and Challenges

Volunteerism does not occur in a vacuum; thus, as society is impacted by change and challenge, so is the phenomenon of volunteer activity. Considering a range of current and anticipated trends and issues provides opportunities to not only react to change, but rather to proactively prepare to capitalize on the potential that comes with change. Current trends that may have noticeable immediate impacts upon volunteerism include episodic volunteerism, increased interest among youth in volunteer activity, increased corporate volunteer activity, and considerations related to risk management for individuals and for non-profit organizations.

The reality of episodic volunteering can be seen worldwide as individuals seek to balance work and family with socially responsible service. Episodic volunteering is defined as service for short, specific terms or for single events or projects (Macduff, 1991). Further, these volunteers may be categorized as temporary (single days), interim (defined period of time like an internship or specific project), or occasional (returning from time to time to assist with projects or activities of short duration) (Macduff, 2005). The challenge for volunteer program administrators is to create an appropriate blend of traditional, ongoing volunteer positions complemented by episodic opportunities that appeal to the public. Building capacity among professionals to design a myriad array of volunteer positions will be critical for the continued success of volunteer programs globally (Edwards, 2007).

Engaging youth in meaningful service is important to foster an ethic of civic responsibility among tomorrow's leaders (Pancer, Rose-Krasnor & Loiselle, 2002), yet providing service opportunities for young citizens remains a challenging component of volunteer program management (Safrit, Edwards, & Flood, 2005). Research indicates that more young people than ever before are engaged in volunteer service (Corporation for National Service, 2005). By adapting to this reality and building strategies to embrace the creativity and energy of teen volunteers, program administrators who build into their service designs opportunities for teens to interact socially while enhancing skills for future job searches will reap the rewards of engagement by the next generation of volunteers. The potential to build a pool of qualified, interested, dedicated volunteers for future engagement is infinite.

Corporate volunteer activity has become a standard component of the business plan for many private, for-profit entities. Some businesses take a traditional approach to volunteer involvement by granting employee leave for service activities (Lindman, 2001), while other corporations link philanthropic giving to employee volunteer involvement. Research indicates that corporations are supporting and encouraging employee volunteering on behalf of the company for many reasons, including doing good for the community, fitting the company's traditions and values, improving the company's reputation, demonstrating good citizenship, building employee morale, building a sense of team among employees, and developing new skills for use in the workplace (Warshaw, 2005). With the current economic difficulties, corporations are looking for opportunities to create a sense of camaraderie among employees and within the community. Partnering with nonprofit organizations and providing internal support for volunteer activity helps to forge stronger connections while benefiting others.

4. Greater Potential Benefits May Be Realized

The authors suggest strongly that the potential for new and/or expanded involvement of volunteers in European Extension programs is enormous. Agricultural advisory committees and local citizen farmer/participant associations have been longstanding critical components of the overwhelming majority of European Extension programs.

Higher Quality Extension Programs

At the most fundamental (and traditional) level, increased formal volunteerism in European Extension systems would result in higher quality and more sustainable educational programs. Extension volunteers serve an important linkage function in insuring that proposed Extension programs are actually based upon viable and current and emerging clientele needs, rather than traditional academic disciplines or familiar technical foci. Most importantly, volunteers are excellent sources for identifying new resources for Extension programs, and may

actually facilitate such programs under the supervision of the Extension professional. This allows the Extension professional to expand his/her breadth of programming, subsequently increasing his/her individual impact and outreach and ultimately, that of the holistic organization.

Strengthened Grass-roots Support for Extension Programs

By directly engaging volunteers in educational program development and delivery, European Extension systems could create a new cadre of powerful grass-roots advocates for the Extension organization; by strategic volunteer identification and recruitment, Extension could even make itself more critical to the larger parent university and/or government ministry. Formal Extension volunteers can be an excellent source of increased diversity consciousness and pluralism strategy in contemporary European communities that are becoming ever more polarized around issues of race and ethnicity. Such volunteers could force Extension professionals to simultaneously think globally while acting locally, and act globally while thinking locally. Volunteers who are engaged meaningfully in Extension programs create broad foundations of public awareness and support for Extension, ultimately increasing the public visibility for Extension, the government, and the university. The end result is more political power and clout for Extension at the local and national levels.

Synergized Human and Physical Capital

Expanded volunteer involvement in European Extension programs would result in increased synergy between goals of economic development and physical capital, and parallel aspects of human development and social capital. From its largely agrarian beginnings, the U.S. Cooperative Extension System has evolved during its first century to focus equally upon the traditional technical development in agriculture and natural resources and youth and adult development in 4-H and Family and Consumer Sciences. Even with the recognized administrative and organizational differences with the US CES, European Extension systems currently have viable programs that tangentially target leadership and community development, albeit largely in rural agricultural contexts. By expanding this leadership development focus through formal volunteerism, European Extension systems could re-brand themselves as unique sources of technical assistance and education ultimately seeking to strengthen human and social capital. European Extension volunteers could serve as important links between traditional Extension programs and emerging social needs that could be addressed by European Extension programs, thus strengthening civic ownership of Extension and nurturing sustainable agricultural/natural resource development balanced by increased awareness of social justice and responsibility. The potential resulting holistic view of European Extension could serve as critical political fodder during increasing times of fiscal stagnation and retrenchment.

In closing, Jedlicka (1990) concluded that "Volunteerism also satisfies an essential element for world development. . . It is not unreasonable to think of developing organizations that can carry out a volunteer world development. . . Dare we be optimistic?" (pp. 54, 99). Thus, while much of the previously published volunteer management models and studies have been focused upon a North American (and most often, American) context, the foundation and resource exist, and the opportunity grows, to develop a contemporary perspective of volunteerism in community-based educational programs and especially Extension programs. Such resources and opportunities could easily serve as the initial foundation for the development and standardization of a holistic model for volunteer resource management that unites and connects the phenomenon of volunteerism regardless of nationality, geographic location, political power, program focus, or organizational context.

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EXTENSION SCIENCE: WHAT WAS IT, WHAT IS IT AND WHAT MIGHT IT BE IN THE FUTURE?

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Keywords: Science history, extension science.

1. What is extension all about?

Extension as an advisory process is as old as mankind. Sitting together, discussing and searching for wise decisions and better solutions is a social activity of typical human character. Later, kings and governors had advisers which developed into ministers and similar formal positions. It was only with ongoing specialisation and division of labour at the end of the Enlightenment era and at the beginning of industrialisation when a more widespread need for advice emerged and advisers became a quickly growing professional field. On the one hand, the need for specialisation and division of labour created ignorance and dependence from specialists and advisers, while on the other hand it was worth this price to pay due to the extraordinary increase of productivity and living standards.

International technical terms and definitions show a wide range of different philosophies from helping individuals to find their best ways by enabling them to solve their problems, up to promoting innovations for modernisation and making nations more competitive in global markets. From counselling or counsel to extension or French vulgarisation, there has also been a shift of the level of intervention from individual clients to knowledge or innovation systems.

2. When did extension science have its best times?

Although we know quite a lot about the history of extension – particularly agricultural extension – the history of extension science is not yet written.

Extension science got a strong push from land grant universities in the United States, where professors also worked as experts for the co-operative extension service. Training future advisors in methods was important as well for professors at land grant universities, which developed into agricultural journalism and to extension methodology and management as new academic disciplines.

Extension science is an applied social science and many of the best social scientists left Germany and enhanced England and to a greater extent the United States to be the leading countries, from where the know-how had to be re-imported after the end of the second world war. Furthermore, the United States made strong efforts to spread their cooperative extension system throughout the world, including the build-up of extension science as an academic discipline. Without these efforts, there would be no ESEE and I would not be here as a communication and extension professor.

In overseas colonies “knowledge transfer” was also important. After independence which occurred from the sixties onwards, in development help (later called development co-operation) modernisation approaches dominated and created a large demand for extension concepts and practical extension work. Transfer of technology was the dominant paradigm, but afterwards was increasingly criticised and followed by the participation paradigm.

Basically, this course of history and extension science have a strong European culture bias. Starting from the Renaissance, followed by Reformation, Enlightenment and the French Revolution, everything crystallised from the United States Constitution and from good old Europe and was spread throughout the world. Some important personalities for the development of extension science are presented in Section H in Vol.2 of the new edition of our extension handbook (See the covers in figure 3): Zacharias Becker, N.F.S. Grundtvig, Alexander Wassiljewitsch Tschajanow, Kurt Lewin and his scholars, Carl Rogers and Paulo Freire, to preserve their contributions from being overlooked or forgotten. And obviously, we also struggle with Everett Rogers, trying to do justice to his five editions of “diffusion of innovations” where he is right, and to correct and complement it, where necessary. We have two living witnesses and quite active researchers at advanced age among us, who can tell more about the good old times of extension science: Anne van den Ban and William Rivera.

In its best times extension science was built by a large community of applied researchers and academic teachers, working interdisciplinarily between social science and a field of application – mainly rural development, especially agriculture, but also health, handicrafts, and others.

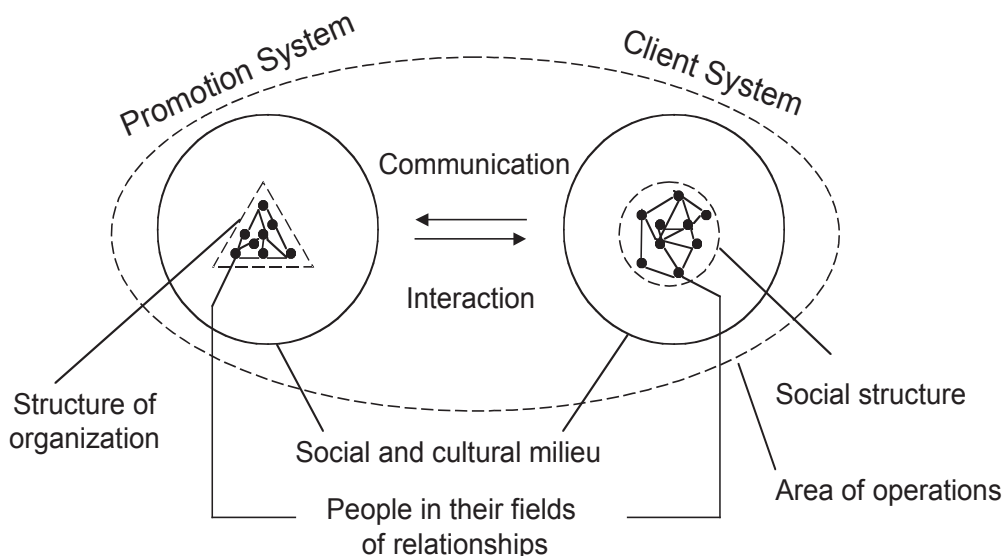
The social science background was mostly rural sociology, sometimes communication, sometimes pedagogy, and maybe not often enough individual and social psychology. Not often, extension scientists had their own institutes or departments and more frequently they worked as the “small brother” of the agricultural economists.

Not many scientific journals for extension existed, but many interdisciplinary journals were open for extension related articles. Furthermore, a high number of textbooks were available in the past. Nearly all countries worldwide had agricultural and rural extension services, and an unknown number of agents worked as extension professionals.

3. Why is extension science such a demanding discipline?

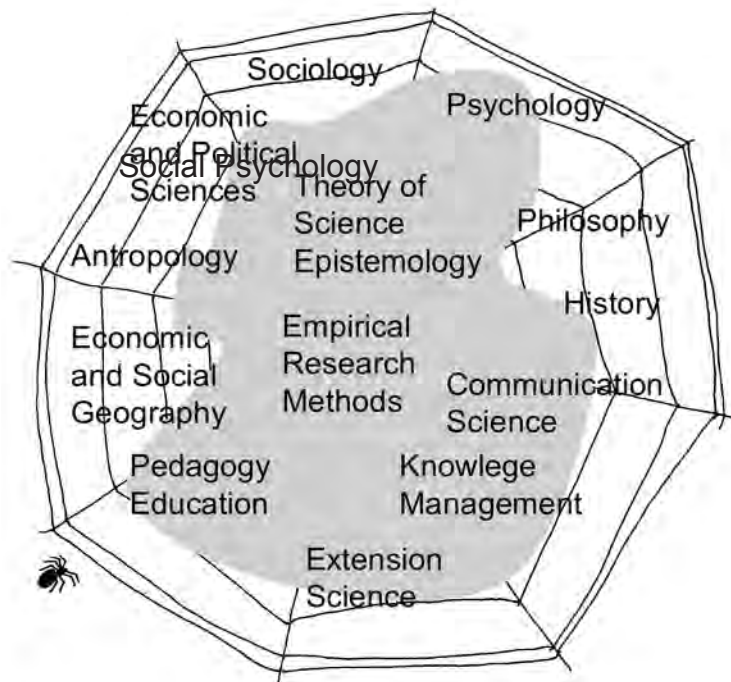
Contrary to mainstream science and also agricultural science, extension science is interdisciplinary and transdisciplinary. Specialisation is not as possible and useful as it is in other domains of science. Extension science is problem oriented and is a systems science. How to delimit the system in consideration varies, but clients are always embedded in a social system and the extension services are part of a network of institutions. In our “Hohenheim tradition” we point this out in our inter-system-model, from where we start differentiating basic concepts for extension.

Figure 1: Framework model of organized extension



If we look to the field of concerned disciplines we can use the image of a spider web, with the learner being the spider who after a basic training has to spin a web of knowledge himself according to the task he needs to achieve and the problem he needs to solve. Getting orientation from a selection of concepts and perspectives related to situations and problems is an ambitious program. The shadow in the background tries to show our actual mix of disciplines used in teaching and research. It is not by chance that it looks like an amoeba, or the attempt to nail pudding on a wall. The field is vast and fluid, and impossible to be a specialist everywhere, or to follow all fashionable trends.

Figure 2: The spider web of social science disciplines, constituting extension science



In addition to the social science part – mainly basics, methods and organisation of extension – we always deal with problems, having a content side, e.g. agronomy or animal husbandry, horticulture, forestry or aquaculture, just to mention a few. Extension workers, as well as extension researchers must therefore be able to investigate and understand new fields of technical knowledge to get familiar with what is relevant in special cases. So it is evident that extension scientists must practice lifelong learning and be generalists and not specialists, compared with other colleagues in the faculty of agriculture.

4. What pulled extension science down?

During a long period of agricultural overproduction in industrialised countries, governments reduced funding for extension and shifted emphasis away from production and towards environmental sustainability. The term agriculture was replaced by “natural resource management”, not really appealing to the main client group, the farmers. The “Training and Visit System” that dominated the practice of extension in developing countries for more than twenty years has weakened extension science dramatically. When it was finally stopped, extension had a corrupted image of worldwide failure, extension research was chronically underfinanced, and most researchers had reoriented their activities, e.g. to farming systems research. Many researchers who continued publishing about ex-

tension were employed or supported by the World Bank, and therefore were not fully independent and suffered from damaged credibility.

In the times of decline of T&V the FAO tried to fill the gap, by doing the same mistake and propagated the “Farmer Field School” as the one fits for all model.

Nowadays, the World Bank is again not doing so well due to their insistence for a necessary shift from extension, NARS and AKIS, to Agricultural Innovation Systems (AIS). This shift might be motivated by avoiding the shameful and failed term “extension”, but it is not useful to try to operate on the highest level of system delimitation and abstraction, neither in extension work nor in extension research. Innovation systems always end up in global perspectives; the local is influenced by the global and innovations that change agriculture mainly come from the outside, like computers, mobile phones or gene transfer. To come to workable delimitations of the systems to manage or to research, we must step down the ladder of abstraction and concentrate on the core system, dealing with the rest as frame conditions. By alternation between micro and macro perspectives the necessary holism then can be reached.

The efforts of the “Neuchatel Initiative” could not change the mainstream, but at least helped bridge the late T&V era into the time after, and preserved and compiled better suited extension concepts into a series of green booklets.

In a period of twenty years of decline, it was no longer possible to attract the best young people for academic careers in general, and in applied social science for agriculture and rural development in particular. The required skills and knowledge is broader and the prospects are less attractive compared to other disciplines or a work in industry.

5. How does extension science look today?

In a world of globalised and liberalised markets new paradigms dominate, such as privatisation, decentralisation and commodification of knowledge, training and extension. Extension science is close to disappearing in Europe, struggles for its survival in the United States, and currently has its centre in India. Rural sociology, as the next neighbouring discipline, is also dissolving in many countries and this does not work in favour of extension science. The professional field, when private extension increases, is less visible, statistics no longer exist, professional standards loosen, and anything goes that sells. Moreover, turnover shrinks and the number of jobs declines if clients have to pay for extension.

Agricultural faculties suffer from budget cuts and lose staff. In Europe the so-called “Bologna Process” creates additional stress to shift application and profession oriented disciplines to the Bachelor level, and to concentrate research on basic and natural science oriented activities, with only one indicator of quality – the impact factor of international refereed journals, in which one must publish. The strategies to cope with survival are multiple and we cannot say which is the best. These strategies include having a Master level course on Knowledge Management with many students from outside agriculture (such as in Wageningen), teaching electives with a mixture of basic communication skills and highly selected useful social science knowledge for different agricultural study courses and concentrating on development oriented, inter- and transdisciplinary research (as we do in Hohenheim, in the tradition of Rheinwald, Hruschka and Albrecht). Each place has specific conditions asking for adapted survival efforts.

6. Does extension science have a future?

Whether or not the good old extension science can survive and be revitalised in Europe and the United States is not certain. Which turn it might take in South America, Africa and Asia, is even more difficult to predict. None-

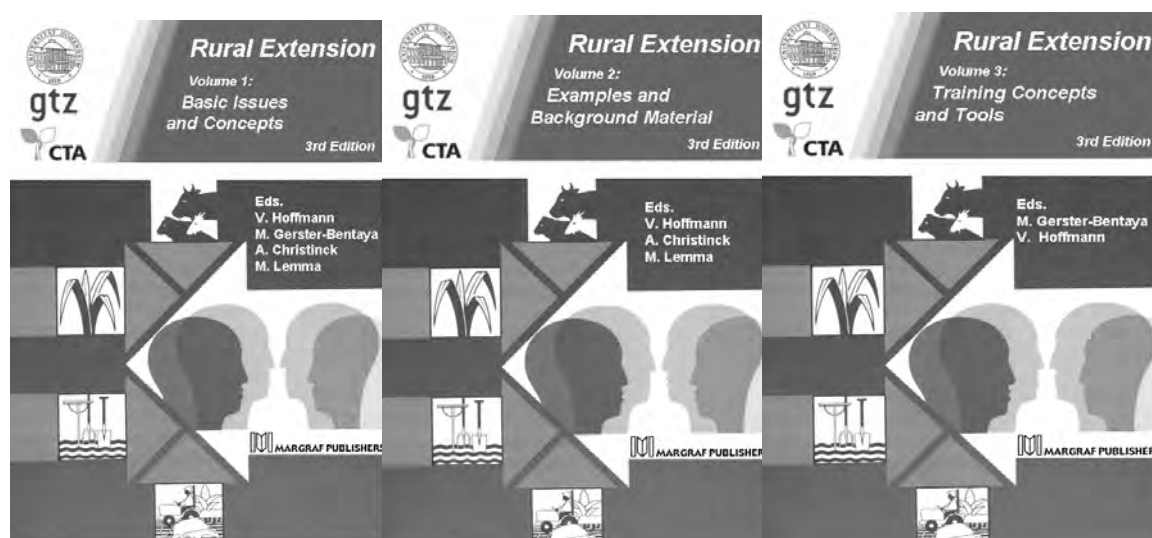
theless, even without an academic base there is a need for extension and the practice of the profession *will* survive.

As a first success, we can say that agriculture and rural development are back on the international agenda. The food price crisis of 2007 and the debate about bio-energy have shown the importance of agricultural development and research once again to the public. Intensification of land use is inevitable to not only feed nine billion people in 2050, but to also produce food, feed, fibre and fuel, as well as for more raw materials like starch for industrial production. Land use products will be scarce for long times and higher prices promise a “golden future” for agriculture and rural development.

This cannot occur without a massive education and innovation offensive, with investment in research, education and extension. I am sure, extension has a future! However, such an implementation of this offensive takes a longer time than a shift in insight, and the financial crisis overlays other problem fields and absorbs public money. We experience that once institutional and human capacities are deleted, they cannot be easily rebuilt. Furthermore, our ESEE community might have disappeared before new money and new policies emerge.

Maybe there will be a later re-import of scientific backing to Europe from abroad. Green cards for extension experts and extension scientists might fill our gaps in the future. But at least we in Hohenheim have reedited our handbook and will hand it over to the next generation of extension scientists, wherever located. Our handbook is a documentation of insights, concepts and tools of the good old times of extension science, with a European and especially German footprint, and we hope it might be useful for future generations.

Figure 3: Covers of the manuals: Rural Extension, 3rd edition



THE DETERMINANTS OF PRODUCT AND PROCESS INNOVATIONS IN AGRICULTURE: THE ROLE OF ADVISORY WORK

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Keywords: Innovations, determinant factors, advisory services, agriculture.

1. Introduction

Objective of this paper is to analyse the determinants of product and process innovations by stressing the role of advisory services among the other determinants. The case study is the agriculture of an Italian region that is Piemonte, located in the North-West of the country.

The approach adopted is an ordered probit regression applied to the number of product and process innovations, the regressors variables are referred to: farmer's human capital, farm structure, territorial characteristics, subsidies for the adoption of environmentally-friendly techniques, relationships with public, private and semi-public advisory entities (cooperatives, farmer and inter-professional associations, specialty producing associations), communication canals used to receive information on innovations (contacts with other farmers, bulletins and journals, meetings, demonstration days, open days, ICT), motivations for and difficulties in the adoption of innovations.

The results of the two regressions show that the determinants of product innovations are different from those of process innovations, generally speaking the adoption of product innovations is more market-oriented while the adoption of process innovations is more subsidies-oriented.

The most effective advisory work for innovation adoption is the work supplied by Provincial Government, in the case of product innovations, and the work supplied by farmer and inter-professional associations, in the case of process innovations, for the Piemonte agriculture.

2. The data and the variables

The data used are available since the Piemonte Regional Government has commissioned a survey on whether and how farms had adopted the innovations produced by regional public centres; the survey was aimed at verify the effectiveness of the public activity in applied research and in innovation stimulation. This survey is quite unusual in the Italian context and shows a notable interest of an institutional body in the innovation's theme and in the methods for diffusion and acquisition of knowledge. The study has been realized by Piemonte region with the collaboration of National Institute of Agrarian Economy (Inea), by a survey activity implemented in the years 2004-2005. The present work analyzes the results of the questionnaires distributed to farmers by a private firm.

The sample is represented by 254 farms referred to five product orientations: cereals, fruits, horticulture, grapes and wine, toma (a specialty cheese from Piemonte). The provinces, where the farms are located, are differentiated according to their production. So Torino and Cuneo are specialized in cereal production; Cuneo, Torino and Biella in toma cheese production; Cuneo in fruits production; Alessandria, Asti, Cuneo, Torino in horticulture; Alessandria, Asti, Cuneo, Torino (Canavese's area) in grapes and wine production. Besides, the study has chosen research projects regarding main themes that are traditionally financed by the region (e.g. the

exam of quantity and quality of cultural varieties, clones or local productions) and new thematic that are required investments for more years (e.g. analysis of environmental impact of cultural techniques)

The number of farms differentiated by product orientations is the following: 76 cereals farms; 65 grapes and wine farms (of which 5 produce Canavese wine); 45 fruit farms; 39 horticulture farms and 29 toma cheese farms.

The structure of the questionnaires was separated in two parts depending on whether the farmers had realized investments or shift in production process during the last five years. The responses of the two parts have been joined in a single format in order to carry out our analysis.

The dependent variables of our regressions are the number of product and the number of process innovations that farmers have adopted. The regressors variables refer to:

- farmer's human capital: the presence of young (less than 40 years old) or female farmers and the use of internet;
- farm age and structure, like the number of years of farm activity, farm size (in hectares and in number of employees) and specialization (in term of land utilisation);
- indicators of social and technological local capital, that is the demographic density of the municipality where the farm is located and the incidence of no profit employees and of research labs in natural sciences employees on the municipality population;
- territorial characteristics, like the farm altitude (mountain, hill and plain), the localization in an agro-food district and in the province of Torino, the distance from Torino;
- subsidies for the adoption of environmentally-friendly techniques;
- contacts with public, private and semi-public advisory entities (cooperatives, farmer and inter-professional associations, specialty producing associations, experimentation labs);
- motivations for the adoption of innovations, like increasing revenue, reducing costs, improving product quality, adjusting the production to consumer needs or to law requirements, obtaining regional funds, reducing environmental impact;
- communication canals used to receive information on innovations (bulletins and journals, meetings, demonstration days, open days, ICT);
- advisory services for the adoption of production and process techniques, like contacts with regional, provincial, inter-professional or producing association advisors, private advisors or contacts with other farmers, participation to demonstration days or to open days;
- investments necessary in order to adopt innovations, like purchase or rent of lands, purchase of machinery, improvement of building for production, change of production typologies;
- administrative, bureaucratic and technical difficulties, like production and delivery of documentation, obtaining certifications and financing projects, timing for documentation, adjustment to laws, lack of personal skills.

3. The results

The approach adopted is an ordered probit regression applied to the number of product and to the number of process innovations.

In table 1, the results of the first regression are reported. The fit of the regression is not bad taking into account that the values of the pseudo-R² are never particularly high in this kind of regressions and that the variables are jointly significant, as the likelihood ratio (LR) test shows. The determinants of product innovations, which are

significant with a positive sign are: farm location in an agro-food product district, the presence of farm investments, the advisory work supplied by Provincial Government, the dummy for grapes and wine production and the membership to a inter-professional association. The necessity of adapting farm products mainly motivates the introduction of product innovations while inadequate personal skills represent the main difficulty.

Table 1. Ordered probit regression. Dependant variable: the number of product innovations

Variable	Coef.	z	P> z
District	0.54	3.0	0.00
Investment	0.33	6.0	0.00
Provincial Government's advisory work	0.82	3.0	0.00
Membership to inter-professional associations	0.30	1.7	0.09
Grape and wine dummy	0.64	3.3	0.00
Product adaptation motivation	1.21	2.7	0.01
Personal skill difficulties	1.36	3.0	0.00
N. obs.	252		
Log likelihood	-265.39		
Pseudo R2	0.14		
LR chi2(8)	87.31		
Prob > chi2	0.0000		

Table 2 reports the results of the second regression. The fit of the regression is good since the value of the pseudo-R2 is 0.33 and the variables are jointly significant, according to the result of the likelihood ratio (LR) test.

Table 2. Ordered probit regression. Dependant variable: the number of process innovations

Variables	Coef.	z	P> z
Product innovations	0.33	4.7	0.00
Farm age	0.02	3.3	0.00
Agro-environment measures	1.79	6.6	0.00
Machinery investments	1.19	6.3	0.00
Use of bulletins	-0.60	-2.8	0.00
Farmer associations' advisory work	0.89	3.2	0.00
Inter-professional associations' advisory work	0.60	2.6	0.01
Grape and wine dummy	0.89	4.1	0.00
Cereal dummy	-1.29	-5.2	0.00
Strict application's deadline	0.48	2.7	0.01
Cost reduction motivation	0.50	3.0	0.00
Pollution reduction motivation	0.51	2.9	0.00
Product adaptation motivation	0.79	4.0	0.00
Membership to a cooperative	0.37	2.3	0.02
Membership to a maintenance consortium	0.69	3.9	0.00
Number of obs	243		
Pseudo R2	0.32		
Log likelihood	-360.318		
LR chi2(15)	340.63		
Prob > chi2	0.0000		

The determinants of process innovations, which are significant with a positive sign are: the number of farm product innovations, the farm age, the presences of subsidies, the presence of machinery investments, the advisory work supplied by farmer and inter-professional associations, the dummy for grapes and wine production and the membership to a cooperative and to a maintenance consortium. Significant variables with a negative sign are: the dummy for cereal production and the use of bulletins and of journals as communication canals. The adoption of process innovations is mainly motivated by cost and pollution reduction and product adaptation while too strict deadline for application represent the main difficulty.

4. Conclusions

Objective of the paper is to analyse the determinants of product and process innovations for the Piemonte agriculture by stressing the role of advisory services among the other determinants. The sample is represented by 254 farms referred to five product mixes: cereals, fruits, horticulture, grapes and wine, toma (a specialty cheese from Piemonte).

The approach adopted is an ordered probit applied to the number of product and process innovations, the regressors are variables referred to farm and territorial characteristics.

The determinants of product innovations, which are significant with a positive sign are: farm location in an agro-food product district, the presence of farm investments, the advisory work supplied by Provincial Government, the dummy for grapes and wine production and the membership to a farmer association. The necessity of adapting farm products mainly motivates the introduction of product innovations while inadequate personal skills represent the main difficulty met.

The determinants of process innovations, which are significant with a positive sign are: the number of farm product innovations, the farm age, the presences of subsidies, the presence of machinery investments, the advisory work supplied by farmer and inter-professional associations, the dummy for grapes and wine production and the membership to a cooperative and to a maintenance consortium. Significant variables with a negative sign are: the dummy for cereal production and the use of bulletins and of journals as communication canals. The adoption of process innovations is mainly motivated by cost and pollution reduction while too strict deadline for application represent the main difficulty.

The most effective advisory work for innovation adoption is the work supplied by Provincial Government, in the case of product innovations, and the work supplied by farmer and inter-professional associations, in the case of process innovations, for the agriculture in Piemonte.

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THE ROLE OF PRODUCERS' ORGANISATIONS IN THE SUCCESSFUL OPERATION OF FAS IN MALTA: LESSONS LEARNT AND FUTURE PERSPECTIVES

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Keywords: Advisory and extension services, farm advisory service, agricultural co-operatives, producers' organizations.

1. Introduction

The Maltese ministry responsible for agriculture until recently offered a free of charge extension service. In view of the need for structured advisory facilities, and the risk that farmers resort to unofficial sources of information, the same ministry has taken the initiative to regulate, monitor and support this service by the relevant legal framework and EAFRD measures in the Rural Development Programme for the period 2007-2013 (Ministry for Rural Affairs and the Environment, 2007). The newly set up private Farm Advisory Service (FAS) providers can be considered as the latest development in the provision of institutionalised advisory and extension services in Malta. Their role is crucial in empowering producers to face the challenges and exploit opportunities brought about as a result of Malta's membership in the EU. Although Maltese rural society has a rich history and experience within the cooperative movement, the formation, and fiscal realities of producer organisations has so far been limited and problematic. The intent of this paper is to identify some of the constraints and highlight possible mitigation options that could serve as recommendations for future action.

2. Background

The Maltese agricultural sector has operated on the basis of the co-operative philosophy and legal framework for the past 60 years. These co-operatives have a unique structure that may hold the reasons as to why farmers are reluctant to group themselves within Producer Organisations (POs). Agricultural co-operatives have an established and traditional institutional structure and have significantly contributed to the sector; however, they are weak and vulnerable from a business and financial point of view. Without the institutional and managerial strengthening of the organisations and the availability of funds for innovation and restructuring, they are susceptible to the ongoing forces that exist within a liberalised market.

The path towards accession instilled uncertainty and confusion in particular amongst the conservative rural society. Malta submitted its application for EU full membership in July 1990 and frozen in 1996 as a result of a change in government. The snap election of September 1998 reversed the seat of governance and reactivated Malta's EU application. Concurrently, communication with the agricultural co-operatives often resulted in conflicting, confusing or inaccurate advice, also in areas pertaining to the formation and operation of POs. The European Commission noted the insufficient progress in the introduction of a legal framework and administrative structures for the establishment of Common Market Organisations, including the activities of producers and processors organisations. In the pre-accession protectionist agricultural policy, co-operatives and their federations have mainly been seen by farmers as political pressure groups that convey claims to government for protection and subsidies. Rural society makes a distinction and perceives co-operatives as representing member interests while POs as a pre-requisite for obtaining EU assistance. This perception is mirrored in the analysis of the effectiveness of the Rural Development Program 2004-2006 (Ministry for Rural Affairs and the

Environment, 2002). As highlighted in the ex-post evaluation of the programme (ADI, 2009), measures that entitled individual farmers to be eligible to financial support were well subscribed to, whereas measures that require a collective effort were not taken up at all.

3. The Role of Producers' Organisations

Following Malta's accession to the EU and the dismantling of protective levies, the agricultural sector experienced a surge in imports, resulting in retail prices fluctuations to the detriment of the local farmer who started to find it increasingly difficult to compete in an open market, a repercussion of past inward-oriented policy and protectionism of domestic production that suppressed the need for the development of a strong professional marketing strategy. Furthermore, notwithstanding the fact that most farmers are members of co-operatives, they market their produce individually rather than collectively, thereby limiting their ability to take advantage of economies of scale, collective bargaining, market dominance, price leadership, information exchange, representation, and to receive a higher return from the market. The resistance to change these traditional methods can be traced back to the farmers self pride and false sensation of market control when the individual gets a small window of opportunity to play and speculate the market. Inevitably farmers carry on competing for the minute profits of the first stage of the value chain.

Given the specific difficulties and the limited levels of producer cooperation, the Maltese government recognised that support is necessary to encourage the setting up of producer groups to modulate market forces and to meet quality standards. By uniting, producers can plan and optimise the scale and timing of output, reduce their costs, improve the quality of primary and processed produce and access and implement technical support for marketing and production activities. In order to achieve this, support is needed to address issues of training, planning and optimisation of product output, improve the quality of primary and processed produce and access and implement technical support for marketing and production activities. This is where the Maltese farm advisory services have an important role to play.

4. Producers' Organizations in Malta

According to official statistics for 2007 (NSO, 2007) 17,148 persons were actively engaged in agriculture, of which only 1,764 persons (or 10.3%) are full-time workers. The fact that the majority operate on a part-time basis is a clear indicator that the sector lacks commitment and dedication. Farming is conceived mainly as a hobby rather than a full-time employment. Though this mentality is not totally impeding the creation and further development of producers' organisations, it can potentially slow down and lengthen the process of adaptation. A total of 1,011 producers, or just fewer than 6% of the total number of farmers, are members of either one of the seven producers' organisations or producers' groups set up to date.

Although a number of sectors have been identified as potential target sectors for the setting up of producers organisations, it is only the fruit and vegetable category that has attracted most interest, particularly since it in itself includes a variety of products. To date, a total of seven different entities are recognised as producers' organisations or groups, with only two in the former category. Nonetheless it is to be acknowledged that these have managed to overcome all the difficulties associated with start-up and contribute significantly to the manner in which the fruit and vegetable sector is being managed. Out of the seven, only two have the legal personality, the rest are not formally constituted and lack the legal personality to operate as a commercial entity, excluding them from any available credit schemes offered by lending institutions. This means that most POs experience financial instability and have inefficient cash flow patterns, which in turn spirals into the inability of convincing financial institutions to grant the necessary credit for improvement and investment. From a financial point of view, most, if not all POs are weak.

A general characteristic is the lack of necessary capacity, especially in terms of qualified and competent human resources. Little specific training is ever provided to refresh and update the people involved within the management structure of the organisations. The importance of creating specific professional representatives, both at management and administration level, could help drastically in the improvement of activities. Furthermore, most POs lack a proper participative structure and some of the key positions within the organisations are occupied by persons who are not producers themselves but are employed by the agro-processing industry, where the agro-processor is the sole buyer of the produce. This anomaly within the governing hierarchy also has a negative indirect effect on farmers in that they show signs of discouragement and scepticism about the PO as an important legal instrument for their development. This together with the fact that many farmers still sell a significant portion of their produce through the middle men (pitkala) instead of passing through their organisation create great challenges that can jeopardise the future development of the sector.

In November 2008 Government prepared a national strategy for sustainable operational programmes in the fruit and vegetable market (Ministry for Resources and Rural Affairs, 2008). The strategy was intended to address these issues and other weaknesses that have an impact on all POs. The strategy takes into account the national dimension within the wider framework of the Common Agricultural Policy. The aim is that of providing the legal framework through which the present strengths can be further developed and adjusted to meet all the requirements as set by EU directives and regulations. Various weaknesses can be classified as quite fundamental and therefore, the strategy clearly identifies that these should be addressed accordingly. The national strategy provides a holistic approach to the development of PO's and their members and facilitates the setting to create a better environment both for the farmers as well as for the FAS providers.

5. Operation of Farm Advisory Services

The experience of FAS providers has been limited in view of their very recent establishment. In general, the response of the rural society to the function and purpose of the FAS has not been rational and consistent so far. Some farmers are somewhat confused and fail to understand the need for such an extensive set up since they associate these services with consultancy companies that provide advisory and support services to access EU programmes and funds. The individual farmer is at times not interested in seeking advice directly and leaves it up to the organisation's management and representatives to seek direction. Unfortunately, the sector is also marked by a difference in attitude and approach between the representatives of one movement and another in the sector. Some are keen to move on to specialisation and eager to seek professional advice in respect of technical and managerial issues, while others believe in traditional exclusively in-house management of affairs.

Given the low level of farmers' education, access to the service has to be presented in the most uncomplicated manner, with as little effort in bureaucratic procedures and filling of application forms as possible. Funds are only available to farmers who fill in their forms correctly and in the evaluation of all the applications have proven to be the most eligible. In this respect, POs are crucial to simplify the process and act as an intermediary between the farmer and the FAS providers in terms of service demand and supply. At the same time, given the unique reality of Maltese agriculture, the service provider has to be in a position to offer advice that is applicable to this reality and not propose ambitious solutions and novel ideas that while successful in other countries, would not work well in the local context without at least some evaluation of the applicability to Maltese conditions. Thus the advisory services need a close affiliation with local research institutions to have issues addressed by experts with a real "on ground" understanding of the situation. On the other hand it has to assist the rural society in organising itself in the best possible manner to profit from this service. The close collaboration between the FAS, the co-operative, where relevant, and the producers' organisation could enhance synergy and establish a platform of co-operation that represents all sectors of agriculture and lobbies at the political level to this effect.

Provided a positive and enthusiastic attitude by the rural community and a continued professional management of the FAS, the sector could have a strong institution as a point of reference for institutionalised advisory and

extension services. The FAS, however, has to develop a reputation and track record as a provider of quality advice, gradually building up a solid client base, founded on mutual loyalty. Service has to be high quality and affordable. Over time, the experience acquired by these entities could be further consolidated and made use of for the benefit of national initiatives.

6. Conclusions

Notwithstanding the very valid contribution that co-operatives have given to the sector over the years, it is now time for farmers to seriously consider moving towards a new way of collaborating and managing their business, as legally recognised and well-managed POs. It is also time for the authorities to support this sector and its development, not only through financial support and aid schemes, but even more importantly and prior to distributing funds, through the enactment and enforcement of the necessary legislation, particularly in situations where certain groups find themselves in uncertain legal territory, through a well-defined and adopted agricultural policy that promotes and encourages POs, and through the creation of platforms for the dissemination of information, exchange of view by stakeholders, and for bottom-up proposals. In this respect, the recent setting up and launching of the rural network can be seen as one such opportunity linking key stakeholders and providing them with an opportunity for collaborative action in areas warranting immediate attention.

Concurrently, Malta is witnessing the evolution of organised forms of private-based farm advisory and extension services. Without in any way diminishing the role and importance of past extension initiatives, it is to be stressed that these newly set up FAS providers founded along professional parameters have a pivotal function in the development of the sector. Farm Advisory Services need the support of government through funds, information campaigns, and investment in research structures, in order to enhance and widen the scope of their operation, and in turn depend on a closer co-operation with other professionals and with the management and technical advisors of existing farmers' groups, associations and other formal organisations. The planned setting up of a Chamber of Agrolologists could further contribute to support the creation and exchange of ideas for development.

The key to the sustainable and successful operation of the FAS lies in the hands of the POs and in whether they are ready to convince their members to embrace this new reality and to invest in human resources skills and capacity in addition to farm modernisation and equipment in order to take a strategic approach to doing farming and to programme and plan for results.

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A PARTICIPATORY PROCESS APPROACH FOR DEVELOPING A PLURALISTIC, DEMAND LED AND MARKET ORIENTED ADVISORY SYSTEM – CASE STUDY OF NIGER

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Keywords: Participatory stakeholder process, developing a pluralistic, demand led and market oriented advisory system.

1. Background

Niger has identified 8 priorities for public action from 2007 to 2009 within the framework of its Rural Development Strategy (Stratégie de Développement Rural, SDR). One of these priorities concerned the study for the implementation of an integrated advisory system for rural development. Mid 2007 the Government of Niger requested FAO's technical assistance and set up a National Steering Committee for this project.

The national agricultural extension system has gradually declined in terms of support for producers since the end of the Training and Visit Support Program which was financed by the World Bank until 1998. Thereafter, the rare organized initiatives have been carried out only through development projects. While some have been valuable, they have been very limited compared to the needs of the country (1.267.000 km²) and its large rural population (83 % live in rural areas) and a high rate of rural poverty (62 %). In consequence, there is very little formal support for rural producers in Niger through ongoing technical agricultural services.

2. The process approach

Convinced of the fact that a future advisory system can only be sustainable when it will be developed under national ownership and through the involvement of all stakeholders concerned and interested in advisory services in Niger, FAO designed a stakeholder process for assessing the existing and for developing the future advisory system with them.

The objective was hence to put the emphasis on the process and on considering the features of pluralism, demand and market orientation. There was no emphasis on a particular advisory model which gave room for developing a country-specific system based on existing institutional and organizational capacities and targeted to the poor and vulnerable producers. One of the main objectives of the initiative was to promote farmers' participation in the design process and their empowered role in the future advisory system.

The core process consisted of two main parts: (a) analysing and assessing the present extension system, and (b) designing a new advisory system, both parts were undertaken with the various stakeholders concerned. However, given the objective of farmers' participation and their weak capacity, FAO suggested a parallel *process of strengthening the farmers' organizations* to enable them to take their roles and position in the core process and in the future demand led advisory system. The *support process* in terms of technical and methodological advice to these two processes was provided by FAO. Additional support was provided by the donor community, particularly the EU who also contributed financially.

2.1 The roles of the various stakeholders in the core process

Government requested for technical assistance for developing a new advisory system, supervised the process through SDR secretariat and the National Steering Committee and will ensure in the future the support for the implementation of the developed proposal.

Non-Governmental Organizations (NGOs) participated in the National Steering Committee and in the regional workshops. They were well in support of a pluralistic system. Their perception/position was that no public extension services exist any more and that they are providing advisory services replacing government services. NGOs are mainly active in emergency activities, but they also employ officers of the public services in order to provide advisory services.

The *role of the private sector* was weak as they hardly provide advisory services. They see their main role in the commercialisation of inputs and agricultural equipment. Most of them are individual service providers, only in the water sector private consultant firms exist. Nevertheless, the private service providers used by the development projects, such as the PIP2 which was financed by the World Bank, participated in the process. Their role in the future advisory system was also determined through the experience in the main development projects and concerns water related services (irrigation), farm management as well as the commercialization of agricultural products and processing.

The *donor community* participated in all steps of the core process in the framework of the SDR and the National Steering Committee. They provided support to the process approach and to the new orientation of the extension system along the features proposed by FAO. However, in some instances the donors supported the Chambers of Agriculture in a biased way and less the overall Farmer Organizations' (FOs) community.

The *seven national consultants* are part of the core process as they represented the stakeholders who had suggested and agreed on them (see below). Their tasks were to undertake the information and data collection and primary analysis, to conduct the regional workshops and to assist in the development of the proposal.

2.2 The role and inputs of FAO in the support process

The support provided by FAO started with the review of the Government request and its TORs which focused only on the public stakeholders in extension. This was opened up for an integrated approach which included all advisory service providers (public, private, NGOs and FOs) for developing a pluralistic system. In addition, the features of a demand led and market driven advisory system were introduced into the TORs. In consequence, the five national consultants which were suggested by SDR and which belonged to the five Ministries concerned by the project (Agriculture, Livestock, Water, Community Development and Environment) were complemented by a national consultant for the NGOs and another national consultant for the FOs. The NGOs and FOs suggested their consultant. FAO provided training to all seven consultants with respect to a new vision of a pluralistic, demand led and market oriented advisory system. The training and continuous discussions changed their view on extension systems and their "public administration" mind. They have considered the new vision of the advisory systems during the analysis and guided the different regional workshops in a new spirit. The national consultants recognised that the old extension system no longer works. Furthermore, FAO supported the national consultants in developing assessment tools like a field investigation quiz which is an analytical framework to appraise the primary organizational goals, functions, resources, methodologies and linkages of all stakeholders (public and non public providers) of the current extension system. From the first mission onwards, FAO had meetings with the donor community and direct consultations with each donor implicated in the SDR. This allowed obtaining their visions of the reorientation of the advisory services and their feedback on the overall process and FAO input.

The core process which FAO developed with the main stakeholders included the restitution of the assessment and of the proposal to the various stakeholders. This was done through regional workshops conducted by the

national consultants held in French for public offices and NGOs and in local languages for farmers. The restitutions to the National Steering Committee were done by FAO. All stakeholders provided then comments and inputs to the reports on the analysis and assessment as well as to the proposal for the new advisory service system which were then incorporated into the reports. FAO further conceived the process in support of the farmers' organizations so that they could develop their future role and expectations with respect to the new advisory system. This was done through reflections in a series of regional workshops which were held in local languages (see below).

2.3 The role and inputs of the FOs

The FOs representatives participated from the very beginning when SDR called for meetings to announce the project for the review of the advisory system. Through their membership in the National Steering Committee and their own workshops, the FOs participated in all steps of the process from contributing to the terms of reference to the last version of the proposal of a new advisory system. They put pressure to establish a demand driven system and participated in the development of it. Every year the FOs in Niger have an audience with the President of the Republic. In 2008, one of the main federations of FOs used this opportunity to express to the Head of State their vision of an advisory system based on farmers' demands. This request was made in the presence of the Executive Secretary of SDR. This has changed the attitude of government offices which then participated in the process with a greater openness to a central role of FOs in the advisory system. Farmers and their organizations participated in a series of workshops: The first round of workshops (1), animated by national consultants, focused on the assessment of the current extension system within the core process. The second round (2) were part of the process of supporting the farmers' organizations. They were held at regional level and moderated by a farmer leader of the West African Farmers and Producers Organizations' Network (ROPPA). During these workshops the farmers defined the capacity development needs of the FOs to elaborate the demand for research and extension services and developed a mechanism for the expression of demand which builds upon farmers' consultations in each community, at departmental and regional level. This was complemented by a component of technical advice for the formulation of the demand and by a fund for financial support called "Fonds d'appui aux services rural régis par la demande" (FASRRD) to help farmers to pay for advisory services provided by NGOs, the private sector or public agents. This demand driven approach will be entirely managed by the FOs. The third round of workshops (3) concerned the restitution of the proposal of the new advisory system which was also commented by the FOs.

2.4 Data favouring the proposal development

The National Census of Agricultures and livestock which was finalised in 2007 gave a lot of insides like the typology of agricultural production in the different regions, the population contributing to the production of particular commodities, data about the FOs and their distribution within the country, the NGOs which are active in the agricultural sector and their distribution in the country as well as the level of production and yields of the different commodities. This contributed to clearly identifying the agricultural priorities in Niger for the markets and for subsistence agriculture. This allowed developing the advisory services in relation to the agricultural production in the different zones and the financial capacities of the population.

3. Experience and assessment of the process

3.1 Difficulties occurring in the process and what helped to overcome them

- The TORs which were first focused only on the public extension system. Resistance to open up and to consider a pluralistic, demand led and market oriented advisory system.

- Heaviness and delay of the process due to the secretariat of SDR who was spearheading the process, but who was overloaded with political and administrative tasks which made planning difficult.
- Weak analytical level of the national consultants.
- Rivalry between the national federations of FOs. At the beginning, it was impossible to discuss with them together. Each of them wanted to discuss individually with FAO missions and the national consultants. This situation was addressed by several measures:
 - Make them understanding that the new advisory system will help them to develop their own capacities and to occupy the driver seat for which they need to be a reunited force because none of them has the capacities on its own.
 - Individual meetings were held first to prepare them for common meetings. The ROPPA leader moderated conflicts between the federations and then identified with them the needs to strengthen their capacities to occupy the driver seat in the new advisory system.
 - The FAO mission and the ROPPA leader consulted the donors to identify financial support in order to organize consultations between the different federations to establish their priorities into a common program with the objective of reinforcing their capacities in participating in the process of analysing the existing and defining the new advisory system.

3.2 Strengths of the process

- Firm commitment by the national Government and the secretariat of SDR acting on its behalf.
- Regular meetings of the National Steering Committee and the involvement of all relevant stakeholder groups in the National Steering Committee of the project.
- Specific process to strengthen farmer organizations in developing their own position in the process of elaborating a new advisory system and of defining their role in the future advisory system.
- Regular consultations with and feedback to the donor community in the country under the umbrella of the SDR.
- Farmers contributed substantially in workshops specifically held for them in local languages.
- The process was placed in the framework of SDR which regroups all sectoral ministries as well as NGOs and FOs.
- Firm engagement of the FOs and their federations in the process, even with financial contributions to have their own workshops.
- Presence of NGOs in regions affected by the different food crises (2005) which allowed to foresee them as future advisory service providers in these regions.
- The legal framework in Niger allowed a pluralistic advisory system as extension services are not described as a public good, they are open to all providers (the text of all 5 ministries has been analysed with this respect).

3.3 Weaknesses of the process

- The assessment of farmers' needs with respect to the future advisory services was based on consultations with farmers, but not on a thorough participatory needs assessment.
- The TORs focused on the advisory system. The research system as well as agricultural and rural education system still need to be analysed and improved to make the advisory system sustainable.

- The quality of participation of the FOs in the process was weak and needed support. The FO representatives had often not the capacity to follow and make contributions in workshops with other stakeholders.
- NGOs are more specialised in emergency activities and in remunerative activities. Only few of them are specialised in agricultural and rural advisory services.
- Smallholder income is weak in Niger which makes financial contributions to advisory services difficult. In addition, there is no culture to pay for these services.
- The different roles and tasks of FOs and of the Chambers of Agriculture are not perceived by most stakeholders.

3.4 Results of the stakeholder process

- i) Breaking the system of planning and programming "top down" and instead relying on participation from the farming communities to help set directions. Changes in the kinds of technical support to be provided and the improvement of institutional and financial capacities on which the process focused.
- ii) Improving the quality of the technical agricultural support for both the "non-public actors" (NGOs and FOs) and for the poor in rural areas is a priority.
- iii) The elaboration of a strategy to improve the agricultural and rural training and to adapt the trainings to the current agricultural system. Key elements of the strategy are the demand led and market driven orientations.
- (iv) The elaboration of a strategic plan for agricultural research to improve the knowledge and the technical agricultural support.

3.5 Success factors for change

- Revue of the TORs of the overall task and of the TORs of the national consultants.
- The design of a stakeholder process and a support process for the farmers' organizations.
- Pressure by the FOs and their federations to have a central role in the future advisory system.
- Training of the national consultants providing them new visions of advisory services.
- Use of appropriate assessment tools favoured the assessment of the extension services of all stakeholders (public institutions, NGOs, FOs and private sector) involved in the current extension system.
- Consultations with the donors all along the process.
- Orientation which the donors provided in the National Steering Committee and their support to the technical recommendation of FAO.
- National and regional workshops with farmers and their organizations in local languages.
- The inputs of the farmer leader of ROPPA to conflict management and to the design of the demand led approach.
- Breaking with the sectoral vision and spearheading of the process by SDR and not by an individual ministry.
- Utilisation of the experiences from projects using private service providers.
- Intensive backstopping by FAO at the rhythm of progress made by the national stakeholders.

4. Conclusions and recommendation for the improvement of the processes

The assessment and redesign of an extension system should be done in the larger framework of agricultural services (research, education and training, extension) and their institutions. A process is required in which the various stakeholders are involved from the very beginning, i.e. with the elaboration of the TORs, in order to express their views and reorient the advisory system based on the capacities in the country and on lessons learned over the past decade. The support process to the core stakeholder process was critical in reorienting the extension system towards pluralism, demand led and market oriented services. In addition, the involvement of the farmers' organizations and support to them in the process was crucial in order to translate the idea of a demand led system into concrete mechanisms. The support through ROPPA brought also in experiences from other countries, an aspect which could be further strengthened in the process with respect to the entire innovation system.

Given the workload of the Executive Secretariat of the SDR, the coordination should have been seconded to a person within SDR and the technical coordination to the team leader of the national consultant team. The selection of the national consultants needs to be on a larger basis, not being limited to officers in the public administration, but to the consultant community who have specific qualifications and experiences to undertake this type of work and who would not represent an institution with particular interests related to the study.

A detailed farmers' need assessment would have given more insides to the content required for the future advisory services and hence also to the staff profiles required to respond to the farmers' needs and demands.

Overall, there is the need to consider the specificities of each country regarding (a) the level of structuring and organization of the FOs and their capacities, (b) the capacities of NGOs to provide agricultural and rural services, (c) the experiences and lessons learned in development projects, and (d) the potentials which the private sector might have and how they can be developed.

5. Conditions for a sustainable implementation of the new advisory system

The future system can only be sustainable, pluralistic, demand led and market oriented, if the implementation of the proposal is accompanied by an organizational development and change management approach. This includes support to accompany the institutions providing advisory services as well as their platforms and linkages within the entire innovation system to overcome their difficulties and to expand their potentials for improved performance, adaptability to up-coming challenges and for client satisfaction. Hence also in the future, a continuous process is required to clarify the roles and tasks of the different actors in the innovation system. This holds true with respect to the roles of the public, private and NGOs service providers, particularly with respect to who takes which role in a market oriented approach. It holds also true of the roles of FOs and their federative structures in a demand led advisory system. Given the substantial efforts needed for the capacity development of the FOs, a separate organizational development approach for the strengthening of FOs is indispensable in order to ensure the empowerment of the farmers' organizations in all aspects. This would include support to them in their respective roles in the implementation process of the new advisory services and their roles and position within the overall advisory system. In Niger, a review of the agricultural education and training needs to be done, in order to up-grad human capacities of the innovation system in the long run. As an immediate action, training programs need to be designed for NGOs and for the remaining public extension staff in order to be able to respond to demands for services and to provide up-to date information, technologies and knowledge. In addition, financial resources need to be foreseen for advisory services undertaken by NGOs and other private advisors.

Gradually, a culture of cost sharing for advisory services which would involve fees for services for remunerative activities needs to be developed, as this is already the case in the onion sector. However, given the weak financial capacities of most smallholders, long-term financial support will be needed by the public sector. While financial

support is required for the supply side, financial mechanisms are needed which enable smallholder farmers to pay for their services and to select their advisory service providers.

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INSTITUTIONAL PRINCIPLES OF CONSULTING SERVICE IN RUSSIAN AGRARIAN SECTOR

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Keywords: Social-economic transformations; institutional subjects; professional staff; national projects; consulting agricultural service, institutional structure.

1. Institutional principles of consulting service in Russian agrarian sector

Social-economic transformations in Russia during the period from 1990 till present day led to a considerable change of the structure of agrarian producers. Reconstruction of institutional economic system, including agriculture, brought about the appearance of a new class of proprietors, who are represented in the agrarian sector by peasant farms. Moreover, rural population got an opportunity to implement their economic interests not only by their labor on collective agricultural enterprises. Having got the right on land as their property, the opportunity to produce and sell the results of their individual labor on personal subsidiary plots, rural population began actively participating in the economic process, (in the USSR the produce of personal subsidiary plots was used only for private purposes.). Meantime, the role of institutional subjects increased considerably, now they are important productive-economic elements of the agrarian sector.

Having less than 20% of farm land, farm enterprises give more than 56% of agricultural produce. They lead in the production of most important food-stuffs: potatoes and other vegetables – about 90%, cattle and poultry – about 50%, milk - about 50%, eggs – more than 24%. At the same time the change of the macroeconomic situation, sharp growth of world prices on energy resources, building materials, service sector, and disproportionate increase of incomes in different branches of the economy resulted in a considerable disproportion in the distribution of professional staff among agricultural and other branches of the economy, to the detriment of the agrarian sector.

Currently, the provision of agricultural enterprises with specialists is 40-45%, on personal farms it is even lower.

Many agrarian enterprises, especially small and medium-sized, have to adopt an extensive way of development; this was reflected in a sharp decrease of volumes of agricultural production, income of enterprises, farmers' standard of living. The decrease of volumes for some agricultural products was 50% and more. More than 45% of agricultural enterprises are not profitable. The authors suppose that this is the result of the deficit of qualified agricultural specialists and, consequently, the impossibility of the development of agricultural enterprises.

This tendency is also the result of the negative role of the state, when it neglected active scientific-technical personnel policy, (in the USSR the state was responsible for the implementation of the scientific-technological achievements and distribution of qualified specialists into the branches of economy).

Deprived of qualified specialists, scientific consulting help, achievements of scientific-technological progress agriculture, in the first turn personal farms, had to operate on a low scientific level.

The impossibility of development makes the agrarian sector inefficient and not attractive both for investors and specialists.

There were some attempts to improve the negative scientific-technological personnel policy. However, these administrative-economic measures were fruitless. From 2006 the government began introducing institutional mechanisms which were directed at a complex solution of the problem of the development of agriculture and rural territories.

In 2006 the government adopted the Federal Law “about the Development of Agriculture” which gave the legal definition “Agricultural Producer”, secured legally the category “Agricultural Production and Market of Agricultural Produce, Raw materials and Food-stuffs”. The Law determines “The State Agrarian Policy”, its aims, principles, guide-lines, measures for its implementation and other important legal categories for the agrarian sector. To implement the Law the government worked out “The State Program of Agricultural Development and Regulation of Agricultural markets, raw materials and food-stuffs for the period of 2008-2012”.

The Program includes the following: Aims of the Program, Tasks of the Program, Execution Period, Volumes and Finance Sources, Expected Results, Management and Control of the Program Implementation.

One of the Program items is “Consulting service to agricultural producers and retraining of agricultural specialists”. The aims of the consulting help to agricultural producers and retraining agricultural specialists are as follows: access of agricultural specialists and rural population to consulting services and increase of the quality of retraining and qualification of agricultural specialists.

To achieve these aims it is necessary to solve the following problems:

- the development of the training centre on the federal scale to provide consulting service to agricultural producers in the RF;
- integration of training centers with information system;
- retraining agricultural specialists taking into consideration ecologically clean, energy-conserving, highly efficient technologies and rendering consulting service to agricultural producers and rural population.

The peculiarity of this program is the wide participation of public-professional organizations in its development and implementation. The section “The participation of associations of agricultural producers in the formation of the state agrarian policy emphasizes the fact that “the aims to involve agricultural producers into the formation of the agrarian policy are coordination of public interests of agricultural producers with federal organs of the executive power of the Russian Federation subjects and guarantees of safe, high quality competitive agricultural products for people.

The program is the complex document containing both organization-economic measures and measures for social development including such a direction as “giving opportunity for young agricultural specialists and members of the families to get a flat”. In order to control and support the execution of the Program “The RF President Council for the Implementation of Prior National Projects and Demographic Policy” was formed.

At present there is a consulting agricultural service including federal, regional and district levels in Agro-Industrial Complex (tab. 1).

Tab.1 - Structure of consulting agricultural service of Agro- Industrial Complex in Russia

Federal center	1
Federal and regional educational-methodical centers	28
The number of regional consulting centers	56
including state enterprises	22
educational establishments	15
management organs	7
other forms	12
district information-consulting centers	465
including FCT ”Social rural development till 2012”	234
municipal enterprises	151
structural sub regional centers	145

2888 people are engaged in the system of consulting agricultural service, among them 1168 people work in regional centers, 1673 - in district centers. The professional staff consists of different consultants (economists and bookkeepers-940, agronomists-364, zooengineers-327, lawyers-233, specialists on ICT and others). In 2008 consulting agricultural service provided more than 346 consultations for agricultural producers and rural population, organized 3000 demonstrative exhibitions, 3400 seminars (conferences, round-table talks) with 84400 participants. The consulting centers issued 18 periodical journals, 227 books and brochures including 4000 other printed items (informational leaflets, bulletins, and booklets) and 4000 articles.

In 2008 the consulting centers provided consultation in economy, credits and auditing - 46%, technology of production - 26%, jurisprudence - 7%, marketing - 5%, not mentioning the consultation on the problems of employment of the rural population, ecology, soft ware, and other issues connected with production and standard of living. The main users of consulting agricultural service were agricultural producers - 66%, owners of personal subsidiary plots, vegetable gardeners -20%, personnel managers of Agro-Industrial Complex - 9%.

Financial source of information-consulting activity of consulting agricultural service are federal, regional and district budgets plus non-budget funds. In 2008 consulting agricultural service got 450,5 million rubles, in 2007 - 217,8 million rubles.

Thus the authors consider these measures the starting point of the formation of the whole active system of consulting agricultural service in Russia. Later on the participants, ways and other elements of this system can be changed in accordance with the aims and tasks of the system. This is only the beginning period of the activity of consulting agricultural service in Russia. All participants and agricultural producers hope that this system will be able to change the negative tendency in the agrarian sector and insure innovation breakthrough.

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INSTITUTIONAL CHANGES AND CHALLENGES FOR AGRICULTURAL ADVISORY SERVICES IN AFRICA

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Keywords: Advisory services, Africa, capacity, reform.

1. Introduction

Agricultural advisory services (AAS) have once again come to the fore of development efforts in Africa and elsewhere. Several new trends, models, and initiatives show that AAS are back on the agenda of governments, donors, and other stakeholders.

There are several ongoing trends in AAS throughout the continent. At the institutional level we observe a withdrawal of state interventions, which leads to models such as privatisation of service providers to improve the quality of service provision, or decentralisation to better take into account the demands of local communities.

More generally we observe the emergence of new arrangements between stakeholders to build new AAS such as services directly managed by farmers' organisations or NGOs, or public-private partnerships including inter-professional bodies or contracts between a private firm and the state. The ongoing trend is moving from 'national advisory service systems' towards more pluralistic 'innovation systems' where all the stakeholders (AAS, research, education, private firms, producer organisations (PO), public services, etc.) have a role to play to promote more sustainable farming systems with better access to markets. The main challenge institutionally is therefore the development of sustainable institutions for service provision with capacity to provide more market-oriented agricultural advisory services (MOAAS).

At the same time, based on the demand of farmers and other actors (traders, processors, exporters), there is a progressive evolution advice content, from technical to economic, from production to marketing and natural resources management, from farm level to collective level, etc. With regards to methods, there is a shift from top-down approaches, which proved to usually be inefficient to improve farmers' practices, to more participatory approaches and a focus on learning processes to strengthen farmers' capacities to make their own decisions according to their objectives and resources. The main challenge here is the development of methods that can enhance participation and demand drive of the AAS.

Moreover, the ongoing trends pose a particular problem for the existing AAS staff to deal effectively with the changes. In many countries there are few mechanisms to train advisors taking into account initial education, refreshment courses, and also networking between advisors for exchanging experiences and knowledge. The challenge is to develop skills to work with new types of institutions, communicate with demanding farmers, and be professionally capable of providing MOAAS.

This paper will describe the current challenges of different AAS methods and approaches taking place in Africa. It will conclude with an initiative to build capacity in Africa to provide market-oriented agricultural advisory services on the continent.

2. Sustainable institutions for service provision

Currently the main challenge for AAS is the development of sustainable institutions for service provision. The key issues are the governance of AAS, including the role of each stakeholder, and financing. The arrangements

between stakeholders are very diverse depending on different parameters, showing there is no single way to address the institutional framework. First, the farmers' demand construction is a long process as farmers express concerns and not demands. There is a need for a lot of interactions between different actors to formulate demands that both service providers and farmers can handle. Second, the building of the supply also is a complex process as many stakeholders have to work together to correctly address a demand. For example, to facilitate access to a specific market for farmers, the advisor has to jointly work with different stakeholders providing specific services (credit, inputs, certification, etc.) Taking into account these two elements, the free market of services rarely is well suited and capable to address the farmers' demands even if the farmers are able to pay for such a service. The hierarchy, meaning the provision of all services through public institutions, is no longer valid because this arrangement is not able to fully address the farmers' demands and because of the cost. Hybrid arrangements such as public-private and private-private partnerships are more likely to be efficient. The coordination among services could be in the charge of a specific service provider (NGO, private firm) or a PO. POs play a crucial role because they are more able to formulate farmer demands, negotiate with service providers, act as an indispensable intermediary in the service provision, or themselves provide full services to members.

In Uganda, the National Agricultural Advisory Services (NAADS) has attempted to increase market orientation through empowering farmers to demand and control extension services through an innovative public-private approach. NAADS targets the development and use of farmer institutions, and in the process empowers them to procure advisory services, manage links with marketing partners, and conduct demand-driven monitoring and evaluation of the advisory services.

The major challenge faced in NAADS is the capacity of private service providers to provide demand-driven and market-led services. This is compounded by the perceived absence of professional progression in the hierarchy of service providers. Other challenges include the transient presence of service providers, which overlooks longer term constraints facing farmers, and also provides little room for long term research extension linkages. The challenge of self regulation for quality service provision and internal management of abuse through formation of professional association have also been noted.

From farmers' perspectives, the key challenge is also related to their capacity to articulate the demand, procure, monitor, and quality assure service providers. Another challenge to such innovations is the perception of farmers over time, especially where desired farm inputs are inaccessible and unavailable, that they have paid too much for training, and thus resources should be channeled to inputs and technologies.

In conclusion, we observe new mechanisms for service provision. However, this needs to be made more sustainable. This can be done by strengthening POs to play a coordination role, with capacities to finance service provision. There is a need for designing rules to finance service provision through state supports, levees, etc.

3. Participation and demand drive in AAS

Demand drive of AAS requires participation of farmer organisations. This means that another challenge of AAS is to strengthen the capacity of farmer organizations to fully participate in extension and to demand services for their members. Different methodological developments are addressing this challenge.

Farmer field schools (FFS) have pushed the frontier of participatory and demand-driven methods. FFS are a participatory method of learning, technology development, and dissemination based on adult-learning principles. Groups of 20-25 farmers typically meet weekly in an informal setting in their own environment with a facilitator. The FFS approach is an interactive and practical method of training, and empowers farmers to be their own technical experts on major aspects of localized farming systems. It assumes that farmers already have a wealth of knowledge. Farmers are facilitated to conduct their own research, diagnose and test problems, and come up with solutions. Three major learning tools of FFS include discovery-based learning exercises, group experiments, and

agroecosystem analysis (Duveskog 2006). Additional defining characteristics include experiential education and group action. These processes help participants to experience, reflect, and make decisions.

Other examples of methodologies with potential to strengthen participation and demand for services are the Farmer Study Circles (FSC), which are implemented through farmer organisations in smaller membership groups, and the Facilitation Cycle (FC) that has been applied as a pilot in the extension service in Zambia. The FSC is based on farmer groups' self study of materials of their choice, developed for the purpose of solving specific issues of their farming systems and supplied by their farmer organisation at a higher level.

The FC in Zambian extension operates as a twin track strategy, with facilitation of demand formulation and action planning in groups, followed up with advice for households using the same principles (Chipeta et al. 2008). The FC includes processes where farmers are facilitated through their own market research, opportunity identification, action planning, needs assessment, resource mobilisation, implementation, and evaluation. The FC is supplemented by the Household Approach, which refers to the individual follow-up in households and the involvement of the whole family, including women and youth. The Household Approach ensures impact of the learning – meaning that the training in the groups is actually put into practise on the farm. A gender study, moreover, found extraordinary outcomes from the methodology in terms of gender equity in ability to formulate demands and reap benefits of the learning, which were attributed to the intensive follow-up in the households involving the whole family (Bishop-Sambrook and Wonani 2008).

There are other experiences in western Africa to promote a new advisory method called Management Advice for Family Farms (MAFF) (Faure et al. 2004). Some experiences have existed for many years and have gone beyond the experimental stage and are now institutionalised and concern a significant number of farmers. Currently advice based on such methods are provided by NGOs (Benin), Farmers' Organisations (Bénin, Guinée, Burkina), or cotton companies (Cameroun, Burkina).

The MAFF procedure is aimed at strengthening farmers' ability to manage their farm and improve their autonomy with regard to their environment. It is based on participatory methods providing (i) self-analyses to modify farmers' and advisers' representations and perceptions of the problems addressed, and (ii) decision aid tools based on technical and economic records (book-keeping) to modify knowledge and generate learning processes. In this respect, management is perceived as a cycle consisting of different phases: analysis, forecasting, action, monitoring, adjustment, and evaluation. Exchanges between farmers are always enhanced by joint analysis of the results obtained by each, and by meetings between them (field visits, on-farm experiments, etc.), as these stimulate strong dynamics.

Although the aim is clearly to enable each farmer to analyse his or her situation, to specify objectives and improve decision making, MAFF is based in most cases on the group dynamics likely to lead to collective evolution of representations. However, more individualised, complementary advice is often needed, in particular on subjects requiring confidentiality and/or to solve specific questions (the choice of an investment, strong evolution of the farming system, etc.).

In conclusion, all of these techniques help to bring about fuller participation of farmer groups in AAS, strengthen their capacity to participate, and to demand services from providers. But there is a need to scale up the often-costly interventions and methods to reach more farmers.

4. Strengthen capacity and skills of advisors to deal with the changes

The current situation in African countries, whose extension systems are undergoing reform, is that a major constraint to the implementation of the new extension policies is the lack of capacity among staff at all levels to carry out the functions related to demand-driven services.

During a consultation in Malawi ([www.neuchatelinitiative.net-Country Consultations](http://www.neuchatelinitiative.net-Country%20Consultations)), it was found that the common methodology for demand formulation (PRA) produces an overwhelming amount of demands, many of which are beyond the capacity and mandate of AAS. It is a great challenge to respond to the forthcoming demand for AAS and to coordinate the response. Another major gap is the understanding of different extension methodologies in a way that these can be used to their purpose. Moreover there are serious gaps in the capacity of extension staff to provide farm management advice and agribusiness development, which are the services most in demand.

In Kenya, the extension service is also undergoing transition and a new extension policy has been formulated (NASEP) that intends to pave the way for more demand-driven extension services provided by different actors. It has, however, been recognized by all stakeholders that the implementation of this policy will demand new skills and competencies from the service providers—both institutionally and personally. It has therefore been decided to develop a training program that can build the required capacity of agricultural advisers in demand-driven extension services.

A design mission in Kenya for the training program (Mathiassen and Henrikse 2008) identified the new roles that public and private extension staff foresee in the future, which will demand new skills. According to the stakeholders involved, the key roles for future advisors will include development of service provision; mobilization for change processes; development of farmer institutions; economic enterprise development; promotion of value chain analysis; promotion of natural resource management; and awareness creation on cross cutting issues. A training programme, which addresses the need for skills applying to these future roles is currently being developed.

5. Solution: Increase capacity for market-oriented agricultural advisory services

These issues are being brought together at the continental level through a joint proposal. The African Forum for Agricultural Advisory Services (AFAAS), the Forum for Agricultural Research in Africa (FARA), the Neuchâtel Initiative (NI), and the four African Regional Farmer Organisations (RFOs) have developed a joint proposal for building capacity for market-oriented agricultural advisory services in Africa. The proposal aims to build capacity that can enhance demand drive, market orientation and pluralism in delivery of services, and the proposed programme will apply a learning approach by basing developments on knowledge gained through experiences that are collected, analysed, and shared. The proposal presents a mechanism for collaboration, networking and pooling of competencies in MOAAS among stakeholder institutions throughout Sub-Saharan Africa.

The proposed partnership programme will work in three components, which directly respond to the above mentioned challenges, plus a fourth component which will facilitate AFAAS establishment and strengthening of its network:

1. Institutional and human resources development, which aims to respond both to the challenge of sustainable institutions with capacity as well as the challenge for the staff involved in providing AAS.
2. Capacity development of farmer organisations and other AAS organisations. This will build capacity in organisations to strengthen the voice of farmers in lobbying and advocacy for investments and policies in AAS as well as for provision of services.
3. Enhancement of an enabling environment through greater capacities for analysis and advocacy knowledge development. This will first of all be a facility for learning from ongoing projects and programmes, and will furthermore support a dialogue on new innovations to inspire the future MOAAS in Africa.
4. Strengthening of the AFAAS network and country chapters for national coordination.

It is expected that this partnership and networking among stakeholders in AAS throughout Africa will create much needed dynamics of innovation in MOAAS and learning from the collective experiences, and that institutions and organisations in Africa will use their increased capacity to facilitate small scale farmers' access to effective demand-led and market oriented agricultural advisory services, which will be required for them to increase their agricultural productivity and market access.

6. Conclusion

These initiatives, models, and trends point to different innovations that are changing the face of advisory services in Africa. We highlighted three main fields of innovations with new institutional arrangements, methodologies focusing more on learning process, and identifications of new profiles of advisors. These trends show that there is not one model of AAS but different way to provide services. However, more information is needed to provide evidence of real impact in the lives of African women and men farmers.

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IMPROVING AGRICULTURAL EXTENSION IN EGYPT, A NEED FOR NEW INSTITUTIONAL ARRANGEMENTS

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Keywords: Egypt, Institutional Arrangements, Agricultural Extension.

1. Evolution of extension in Egypt

Agricultural extension in Egypt is represented in the organizational structure of the Ministry of Agriculture and Land Reclamation (MALR) as a sector, among 7 sectors. This sector includes four main central administrations, namely Central Administration for Agricultural Extension and Environment (CAAE), Central Administration for Horticulture and Agricultural Crops, Central Administration for Soils and Water, and Central Administration for Nurseries and Environment (www.agr-Egypt.gov.eg).

The extension organization is represented at all administrative levels, starting from the central level in Cairo (represented by the CAAE), and Directorates of Agriculture at Governorate and District levels down to the grass roots (the Village level). Yet, the governmental extension is highly criticized for being ineffective and irrelevant. Village Extension Workers, being the most important grass roots level, working closely with farmers and their families, suffer from several problems related to: low socio-economic status due to low salaries, incentives and promotion opportunities, lack of sufficient educational qualifications and training, insufficient transportation facilities.

According to the MALR, ARDC's "Strategy for Agricultural Development up to 2030", the existing extension organization needs reform and development policies for several reasons, including: (a) Ineffective performance of extension personnel, associated with limited resources and ever-decreasing numbers of extension workers, (b) Lack of trust of producers, especially those working in highly specialized and sophisticated activities, in extension worker, (c) Lack of mutual relationships between research and extension workers in addition to lack of involvement of university staff and technicians in extension work, (d) unfair salaries of extension workers, especially VEWs.

As reported by (Rivera et al, 1997), agricultural information and extension services are part of a pluralistic complex involving multiple systems within the public and private sectors to provide information, education, and problem solving assistance to farmers and their families. In Egypt, the tendency is for the public sector extension system, at least in theory, to serve the vast majority of small farmers, while the private sector suppliers and consultants work with corporate farms and large estates. The array of providers, purposes and functions that can be attributed to agricultural extension justifies calling it "a complex". Its providers are not only multiple but involve both public and private sector, and often these overlap or are mutually supportive. However, different providers will tend to emphasize distinct functions-whether information (technology) transfer, education by way of farm-management training, or problem solving through an on-farm and office consultation. A general examination of different agricultural institutional settings shows that extension – type functions may be primary to an agency or organization, as with the agricultural extension service CAAE, secondary, as with private farms and cooperatives, or supportive, as with credit institutions, supply agencies and marketing agencies. Also new extension – type activities are being developed, such as marketing extension.

There are other several service providers, who actively provide farmers and rural people with highly diversified services covering a broad spectrum areas including irrigation and water management, preventive health and nutritional practices, family planning and reproductive health, environmental and natural resources conservation.

These extension functions and activities are provided by different ministries in addition to private sector and CSOs or NGOs.

Bearing in mind the fact that there are different players and actors who are effectively provide farmers and rural people with agricultural extension and advisory services, in addition to the clear reality about the disability of governmental extension to cope with ever increasing and changing demands of farmers, producers and rural people, the pluralistic approach seems to be the best approach. The adoption of this approach needs more in-depth study and analysis of the potentials and realities of each actor, the division of labor, roles and responsibilities among those different players. The role of the government must be defined, articulated and regularly reviewed, concerning the quality of service, monopoly avoidance, resolving conflicts and disputes among different partners and parts in all contracts and agreements in addition to helping rural people establish and manage their real cooperatives and effective NGOs and associations.

The concept of extension, as suggested by (Saleh, 2007), needs to be broadened to include other services, in addition to agricultural services, to cover the relevant areas such as rural environment, rural natural and human resources, rural families affairs, ..etc, and therefore the title of the CAAE could be changed to Central Administration for Rural Extension (CARE).

It worth, also, as concluded by (Abdel-Aal, 2008) focusing on the important role of agricultural cooperatives which are under-going- due to Structural Adjustment Policy processes-an acute condition of inefficiency. However, farmers still express a real need for more effective cooperatives to cater to their farming needs and better express their demands and views. In the course of reforming agricultural cooperatives there is a need for a new cooperation law that provides the environment for forming new democratic and farmer-owned cooperatives. The law also should allow the cooperative to engage in agricultural businesses and to compete on equal footing with the private sector.

A critical review of the extension personnel, from different types, at different levels could reveal some points of weaknesses and threats that might need specific arrangement in order to improve the overall structure and functions of agriculture in Egypt.

As shown in table (1), the following important indicators could be concluded as follows:

- The number of extension workers working closely with farmers is relatively low since the cultivated land area served by 1 Male VEW is more than 3000 feddans, which is too large to be served by the VEW considering the fact that those VEWs have insufficient transportation facilities. The ratio is aggravated considering the cropping area, since the cropping land area served by 1 Male VEW reaches to more than 5000 feddans. Regarding female VEWs the situation is worse since each 1 female VEW should serve around 61000 feddan (cultivated area), and around 109.000 feddans (cropping area).
- Concerning VEWs/ land holders ratio, each male VEW should serve 1400 land holders, whereas each female VEW should serve more than 27000 land holders.
- The number of SMSs providing the technical support and back-up to VEWs is extremely low since each 1 male SMS is serving more than 2.000 feddans of the cultivated area, and around 4.000 feddans of the cropping area. Regarding female SMSs the situation is also worse since each 1 female SMS should serve more than 13000 feddan (cultivated area), and around 23.000 feddans (cropping area).
- Concerning SMSs/ land holders ratio, each male SMS should serve around 1000 land holders, whereas each female SMS should serve around 6000 land holders.
- The number of SMSs is more than the number of VEWs which could be confusing, but it could be interpreted by the tendency to direct more specialized and highly qualified personnel for working as SMSs in different areas.

- The VEW / local leaders ratio is reasonable since each male VEW can get the help and support from around 7 local leaders who can serve as contact farmers or para-professionals. Regarding female VEWs the situation is different since each female VEW can get the help and support from around 42 female local leaders.

Table 1. Extension Workers (EWs) in Egypt*

Position	Male		Female		Total	
	No.	%	No.	%	No.	%
Governorate Level :						
Extension Director	28	100	-	-	28	100
EWs at Agricultural Directorate	408	60.3	269	39.7	677	100
District Level :						
Chairman of Extension Department	205	100	-	-	205	100
Subject Matter Specialists (SMSs)	3303	85.5	560	14.5	3863	100
Extension Center Level :						
Director of Extension Center	199	100	-	-	199	100
Subject Matter Specialists (SMSs)	594	89.3	71	10.7	665	100
Total no. of SMSs	3897	86.1	631	13.9	4528	100
Village Level (3866 Villages) :						
Village Extension Workers (VEWs)	2669	95.2	136	4.8	2805	100
Total Extension Personnel	7406	87.7	1036	12.3	8442	100
Male Local Leaders (all Ag. Activities)	18086	100	-	-	18086	100
Female Local Leaders (all Ag. Activities)	-	-	5658	100	5658	100
Total number of land holders (2007)**			3.718.000			

*Source: Counted from: Central Administration for Agricultural Extension, "Extension personnel in Egypt" Technical office, 2007(in Arabic).

**Source: Counted from: Ministry of Agriculture and Land Reclamation, Sector of Agricultural Affairs, "A summary of Agricultural statistics - from 1982 to 2007", 2007, (in Arabic).

2. Suggested recommendations

- Encouraging the establishment of Civil Society Organizations CSOs, or farmers' and producers' NGOs and associations. These entities must be free from direct governmental authority or control, except in case of disputes or conflicts among members. This arrangement will need to issue the new cooperation law, or a Prime-Ministerial decree, in coordination with the MALR and other relevant institutions (such as the syndicate of agriculture, the Ministry Local Development,..etc).
- Recruitment of new VEWs is an urgent requirement to fill the gap resulting from retirement of the old-aged extension workers, associated with the application of governmental policies, since mid-eighties, of avoiding new appointments in the MALR. The current conditions are convenient for trying new mechanisms of contractual extension, through NGOs (such as farmers' associations and organizations), in which farmers will be willing and capable for paying some, or all, of the costs of extension services. In addition to licensing arrangements for new EWs, this arrangement will need a Prime-Ministerial decree, in coordination with the MALR and other relevant institutions (such as the syndicate of agriculture, the Ministry of Labor Force,..etc).

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A SYSTEMIC EVALUATION OF ADVISORY SERVICES TO FAMILY FARMS IN WEST AFRICA

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1. From Agricultural extension to Family farm advice

In West Africa the organization of AAS is deeply changing. After a withdrawal of the state from agricultural extension functions and a stop of "Training and Visit" programs financed by the World Bank, we are witnessing the emergence of initiatives supported by farmers' organizations, NGOs, agro-industries, input suppliers, etc... (Swanson 2008). Those initiatives developing an Advisory Services to Family Farms (ASFF) have benefited from methodological and financial support from French Cooperation. Based on common principles several experiences have been carried out, including in Burkina Faso and in Benin (Faure et al., 2004). However, despite the positive impact of these initiatives on family farm performances, their sustainability is not guaranteed and still depends on external aid. The aim of this communication is to show that the structuring and the development of an AAS are not linear processes and that the characteristics of the advisory system is the result of a balance between its source of financing, its governance mechanisms, the quality of field staff, and the method used to deliver advice. The study is based on the analysis of two situations (Benin and Burkina Faso) in the framework of an action-research approach.

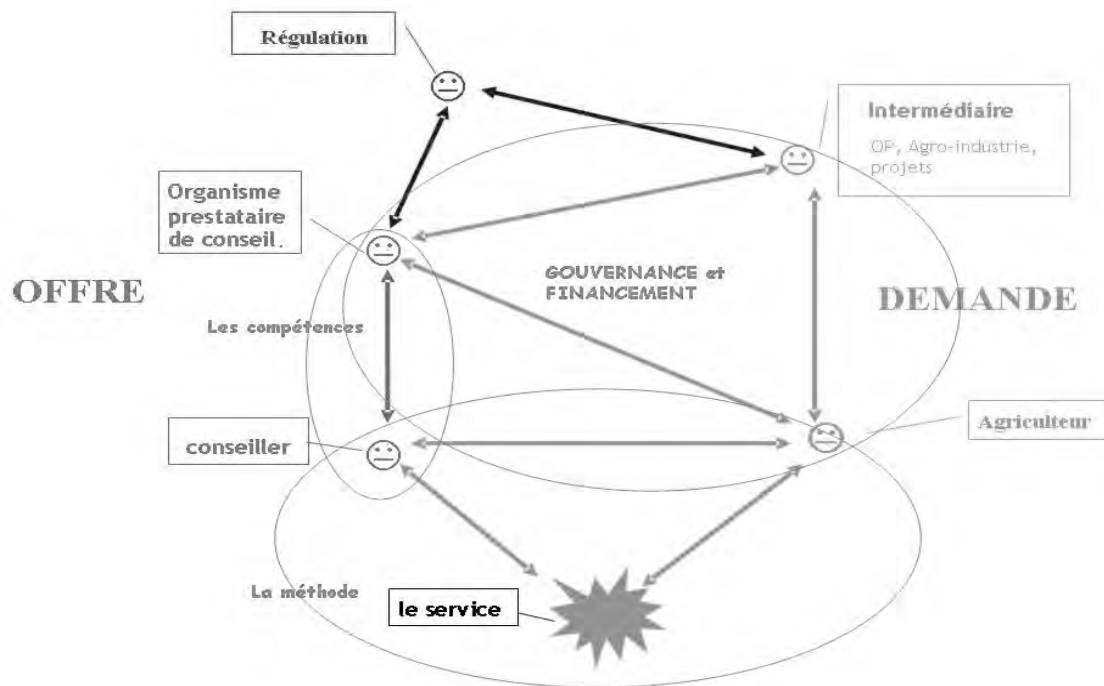
2. The conceptual framework

The concept of "Advisory System" (Birner et al., 2006) will be used to analyze the development process of the two AAS. An advisory System is formed of three components:

- (1) the advisory method, including its scope (technical or economic, production or marketing, tactical or strategic, etc.) and its intervention modalities (advisory tools, type of relationship between adviser and farmer);
- (2) the stakeholders of the advisory system including a providers subsystem (service supply) and a users subsystem (service demand) both of them taking into account the human resources dimension (skills, training);
- (3) the functional relationships between system components to understand their interdependence highlighting two main points which are the financing and the governance.

The Figure 1 gives a framework to identify the balance status between the different components of the Advisory system. Therefore, blocking in the AAS development can be interpreted as an imbalance between available funding, governance mechanisms, field agents' skills and method implemented.

Figure 1: The advisory system



Source: authors adapted Gadrey 1994

3. Case studies

3.1. ASFF in Benin

On funding from the French aid and with the support of development projects, the ASFF was implemented in Benin in three phases.

An experimental phase

A pilot phase started in 1995. The establishment of a “farm management centre” at the Agricultural Sciences Faculty gave the opportunity to design and test the method prototype. Logbooks on farm management practises were designed and distributed to pineapple producers in southern Benin. Logbooks were designed for literate farmers. At this stage, emphasis was put on cash flow monitoring. The method was considered elitist and top-down by farmers who received little feedback to improve the management of their farms.

A ASFF controlled by NGOs

To overcome this difficulty, from 1997 until 2000, the implementation of the ASFF was entrusted to four NGOs whose executives were former students of the Agricultural Sciences Faculty. Closer to farmers and highly reactive, these NGOs worked with groups of young volunteer farmers, producers of pineapple, cotton, or rice. These NGOs adapted the advisory method to farmers needs including new themes.

A development which involve more farmers

To support extension up of ASFF in new regions, NGOs and the development project decided in 2000 to translate all ASFF tools in national languages. With the support of the NGOs, the first members, often literate in their own national language, adapted the logbooks and formed new groups in their villages. Thus, farmer-

advisors were trained and supported by NGOs advisor to address simple issues with other farmers. At this stage Farmers Organisations (FO) also launched their ASFF.

Nowadays, 4 NGOs and 2 FOs provide ASFF to 5 000 farmers in Benin with a total of fifty advisors and 500 farmer-advisors.

A deadlock due to funding

However, despite their interest in the process neither farmers nor FOs contribute significantly to the running cost of the service which remains supported by the external aid. Financing becomes a blocking factor for the development of the ASFF, which greatly weaken its durability. Funding opportunities are envisaged, with a possible involvement of AICB (Cotton Stakeholders Association in Benin) in the cotton areas of the country. If this support concretize, it would initiate a new cycle of evolution of the ASFF.

3.2. ASFF in Burkina

The development of the ASFF in Burkina Faso also passed through different phases.

A test phase with a strong involvement of research

From 1993 to 1995, on request of the NAES (National Agricultural Extension Service), agricultural research developed and tested in three villages a new method of advice to family farms (Faure et al., 1998). However, it was never implemented on a large scale because of disengagement of NAES from agricultural extension.

An attempt of a FO to develop a ASFF

In 1998 UNPC-B (National Cotton Farmers organisation) wishes to engage in the establishment of an advisory service to family farms taking into account all the farm activities (Rebuffel and Faure, 1999).

UNPC-B encountered two main difficulties in the implementation of this project:

- On the one hand it was difficult to identify experienced field staff with technical and human skills required by FO.
- On the other hand, UNPC-B faced an opposition from donors supporting cotton sector. For them the establishment of an ASFF would have come into conflict with the extension service of the cotton company. Without self-financing capacity, UNPC-B stopped the implementation of this project.

A willingness of the cotton company to promote ASFF

Starting from 2000, the cotton company saw the AFF method, as a tool that may help to improve cotton production and to improve its relations with farmers. With the methodological support of research, a test was initiated. During this phase two major limitations were underlined by the cotton company: (i) the small number of producers who can be supported by an advisor, (ii) the heavy workload that represents the implementation of the AFF for field staff who have other functions. During this pilot phase, UNPC-B was gradually involved in a formal co-piloting of the service. However, the different committees involving representatives of the two structures didn't work, mainly for lack of involvement of UNPC-B, reflecting its disagreement over the orientations of an advisory service implemented by cotton company staff.

4. The interactions between components of the advisory system

To understand the development process how these two advisory systems, it is important to take into account the interactions between their components.

The kind advisory method implemented depends on financial and human resources availability

Method and tools used in Benin and Burkina Faso are related. However, in Benin the emphasis is put on farmers training and farm economic analysis. In Burkina, emphasis is put on farmers training for technical and economic analysis of their farming system.

In both situations, the method was designed during a small scale pilot phase, which strongly determined the characteristics of devices which were developed during the up scaling phase. It predefined: (i) the advisors profile as being able to master farm management tools, animation techniques, etc., (ii) advisors work organisation (number of farmers groups, group size, etc.). Therefore, the running cost per participant was relatively high.

In Benin, the method subsequently evolved. This didn't come from new needs expressed by farmers as they didn't have formal way to influence the planning and evaluation of NGO activities. It was more the result of donors' will to increase the number of participants while controlling expenditures, combined with NGOs willingness to preserve their advisors networks and their skill level. The main innovation was the implementation of a farmers-advisors network supported by formal advisors. Such a modification required to deeply review the organization of training activities and tools to adapt them to farmers-advisors' skill and availability and to the new role of formal advisors.

Nature and quality of advice are closely related to advisors' skills

Advisors profiles are different in Benin and Burkina. In Benin, during their initial A levels training, advisors trained for farm management. In Burkina, most of the advisors of the cotton company have a Master degree in agriculture, giving them technical skill in many areas.

Training level and origin of the advisor have an influence on the content and quality of advice, as well as the type of relationship established with the farmer.

A high level of qualification is often synonymous of relevant advice, which can be specialized or global, including a strategic dimension, but also of a poor relationship with the farmers.

Lower levels of qualification often limit the advice to specific technical areas. A farmer-advisor, according to their experience, can only deal with certain themes, in a process closer to animation than to advice. In Benin, the decision to rely on farmer-advisors resulted in a deep reviewing of advisory tools and advisors work-organization.

Governance influences the content of the board and management advisors

In Benin, governance is based on two set of contracts: (i) the first set between a project and private advice providers, (ii) the second set between these providers and farmers. FOs are not involved in planning and evaluation of activities at regional and national level.

In Burkina, at national level, governance is shared between the cotton company and the cotton farmers organisation. But at lower levels, no mechanism has yet been implemented to define and monitor advisors work.

The governance arrangements have a strong influence on the content of the advice. This influence may be through explicit mechanisms to take into account the demands of the stakeholders (steering committees at local or national level, contracts with providers...). This influence can also be implicit through power relationship among stakeholder of a same agricultural system.

Financing mechanisms are crucial in defining advice content and governance rules

The two case studies show that the stakeholders face the same challenge. Initially it is international cooperation funding which helped to develop the method and to initiate a first phase of development.

In Benin, farmers' financial contribution is symbolic way the council and FOs are not contributing. Thus, prospects focus on access to state and cotton sector subsidies.

In Burkina, the institutional affiliation of the ASFF offers hope of financing through taxes on cotton marketing and state subsidies.

The budget available have a direct impact on (i) recruitment of advisors, through the definition of their profiles, their salary and their number, and (ii) the advice method, through the intensity and quality of the relationship between advisors and farmers and therefore the ratio of farmers per advisor.

But also, those who finance the ASFF want to promote their interests or their views. Thus, in Burkina Faso, the cotton companies which support a significant percentage of running costs, which to promote advice contents that strengthen cotton production.

5. Conclusion

Analysis of ASFF in Benin and Burkina Faso shows strong interactions between the different components of an advisory system (methods, staff skills, governance, and financing). These components interact over time alternating balance and reorganization phases, expansion and lock-up phases. The complexity of the dynamics observed highlight that promotion ASFF does not follow a single pattern but that the ASFF are socially constructed as reflect of stakeholders strategies in a specific context.

Supporting establishment or strengthening of ASFF requires to take into account interactions between components of the system and to rule out standard solutions.

Support should lie on strengthening the stakeholder capacity to anticipate blocking situations through understanding consequences of a decision on each component of the system.

However, to avoid deadlocks it is suggested to involve stakeholders beyond a specific commodity sector to establish sustainable funding.

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EFFECTIVENESS OF EXTENSION WORK IN THE OPINION OF POLISH ADVISORS

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Keywords: Training of advisors, extension evaluation.

1. Introduction

Improvement in advisory work requires continuous assessments and monitoring of advisory programs performed by agricultural extension centers (ODR), respective advisory forms and methods, knowledge of advisory work, needs of farmers as well as educational and information needs of agricultural advisors.

Knowledge for these topics shall constitute the basis for any activities with regard to extension restructuring and preparation of the concept of its further development. As a result, a questionnaire research study was conducted in 2007 among field advisors and site specialists in provincial agricultural extension centres (ODR) (state owned extension organizations) across whole Poland and, on its basis, a complex assessment was made of their operations (Kania, 2007). Some of the obtained results have been presented in this study.

The purpose of the paper is to analyze applied forms and methods of advisory work and identify characteristics and factors affecting the effectiveness of consulting services in the opinion of advisors. Percentage structure, arithmetic average, modal and point-based hierarchy of validity have been used in the analysis of empirical data contained in questionnaires.

2. General description of advisors being examined

The analysis was made on 187 correctly filled questionnaires (4.6% of the population of advisors), including 66 filled out by specialist staff and 121 by field advisors. Women dominated among randomly examined specialists (60%), while in the case of field advisors the number of examined men and women was similar. The average age of advisors was 47.2 years (between 26 and 65 years). Average number of work years of advisors was 24.9 (from 2 to 43 years), of this in consulting 17.8 (from 1 to 41 years). An agricultural high school or university degree was held by 83.6% of the advisors, and non-agricultural degree, mainly in economics by 2.6%. Quite a considerable percentage of the advisors being examined only had secondary school education – 13.3 and these were especially field advisors.

An important issue for creating a good image of extension is, apart from knowledge, experience and skills resulting from length of service in and outside consulting. Production training in agriculture has been declared by 51.8% of the advisors, especially men, in local administration- by 27.8%, in agricultural education - by 11.8%, and in other branches of the food economy - by 21.9%. In the last five years of work, 25.7% of them participated in courses and training, and 10.7% completed short training abroad or participated in foreign study trips. A large percentage of the advisors (68.6%) participated in one-day methodical training courses, usually 1-2 day long (in their opinion these are too short). One should, however, note that as much as 17.1% of the advisors did not participate in any forms of acquiring new professional skills, what, given rapid changes in the market economy and in agriculture and rural environment itself, may result in self-degradation of these advisors.

Almost all advisors (apart from 3 cases) declared that they benefit from different forms of self-education, consultations and information, among which in the first place is professional literature and journals (33.2%),

subsequent places are held by: agricultural TV programs (18.3%), advice of research institution employees (18%) and advice of agricultural university employees (17.6%). Use of the Internet has been declared by only 11.8% of the advisors, and agricultural radio programs for farmers only by 6.6% of the advisors.

From the declarations of the respondents, it seems that average number of farms cooperating with advisors - specialists is 40, and with local advisors – 87.3, what gives the average of 76 farms per 1 advisor. On the other hand, from statistical data for Poland, it seems that the average nationwide ratio of the number of farms per 1 advisor is 410, showing at the same time a very large diversity in different 16 provinces of Poland, namely from 219 to 662. Assuming as a result of our research that an agricultural advisor cooperates in the field with an average number of 87 farms (most common number *Mo* is smaller and is 50 farms), with regard to the data from the National Statistical Office (GUS) only every fifth farm in our country is covered by advisory aid. It should be also pointed out that average farm size in Poland is 7.5 hectares, showing at the same time a very large diversity across provinces, on average from 3.2 ha to 16.5 ha.

Among farms cooperating with Extension Centres (ODR) on average 35.8% are farms with non-agricultural sources of income whose advisory needs go beyond traditional agricultural extension. An advisor being examined on average works across the area of 3.8 districts, although most often it serves 1 district (*Mo* = 1 district) and 20.5 villages (*Mo* = 10 villages). The furthest located farms cooperating with a field advisor are on average 25 km away (*Mo* = 30 km).

3. Forms and Methods of Extension Work in the Opinion of Advisors

In advisory work one distinguishes three forms of advisory service: individual, group and mass extension services (Przychodzeń 1991, Ban den Van and Hawkins 1997, Wawrzyniak 2003). In each of these forms different methods of advisory service are used. Tables 1-3 present results of effectiveness of different forms and methods of advisory service, by the advisors. Assessment has been made by means of granting points in the scale from 1 point (least effective) to 10 points (most effective). The advisors being examined have given the highest scores to individual advisory service ($\bar{x} = 9.1$), followed by group advisory service ($\bar{x} = 8.1$), in the end mass service ($\bar{x} = 6.9$).

In the case of individual advisory service they recognized as the most effective the method of extension advice and consultations granted directly to farmers in their farms ($\bar{x} = 9.1$), and particularly if they were based on a business plan prepared by the advisor (Tab. 1). Subsequent places in terms of effectiveness have been taken by the methods: advice and consultations in the office of the advisor ($\bar{x} = 7.0$) and the so-called occasional provision of advice and consultations, on the occasion of meetings, training programs, exhibitions, fairs, etc. ($\bar{x} = 6.2$), what, as it results from research (Seevers and others 1997), is also heavily used in extension work.

Table 1. Estimated effectiveness of individual advisory methods from 1 (the least effective) to 10 points (the most effective) and hierarchy of their importance (2001)

Individual advisory methods	Specialists		Generalists		Total advisors	
	$\bar{x}$	hierarchy of importance	$\bar{x}$	hierarchy of importance	$\bar{x}$	hierarchy of importance
Advice and consultation on a farm	9,1	1	9,1	1	9,1	1
Advice and consultation in the	6,9	3	7,1	3	7,0	3
Advice and consultation in other	5,7	4	6,4	4	6,2	4
Advice and consultation based on	7,0	2	7,3	2	7,2	2

$\bar{x}$ – mean; *Mo* – mode = the most frequent value

As regards group extension methods (Table 2), the following have been recognized as the most effective, in the following order: field demonstrations and shows ($\bar{x} = 8.1$), implementation experiments ($\bar{x} = 8.0$), training courses ($\bar{x} = 7.2$), work with target groups ($\bar{x} = 7.1$), discussion groups ($\bar{x} = 6.8$), lectures and seminars ($\bar{x} = 6.5$), trips and study trips ($\bar{x} = 6.2$) and competitions ($\bar{x} = 6.0$).

Table 2. Estimated effectiveness of group advisory methods from 1 (the least effective) to 10 points (the most effective) and hierarchy of their importance (2001)

Group advisory methods	Specialists		Generalists		Total advisors	
	$\bar{x}$	hierarchy of importance	$\bar{x}$	hierarchy of importance	$\bar{x}$	hierarchy of importance
Demonstrations, shows	8,0	1	8,2	1	8,1	1
Innovational experiments	8,0	1	7,9	2	8,0	2
Trainings	7,3	2	7,1	3	7,2	3
Target groups	7,3	2	7,0	4	7,1	4
Agricultural exhibitions and	7,0	4	7,1	3	7,1	4
Discussion groups	6,9	5	6,7	5	6,8	5
Lectures and seminars	6,7	6	6,4	6	6,5	6
Trips and study visits	7,1	3	5,7	8	6,2	7
Contests	6,4	7	5,8	7	6,0	8

$\bar{x}$ – mean; Mo – mode = the most frequent value

In mass extension (Tab. 3) in the opinion of advisors the greatest effectiveness is demonstrated by such methods of communication as professional journals ($\bar{x} = 6.9$) and television programs ($\bar{x} = 6.9$). Second place is occupied by brochures, manuals and instructions ($\bar{x} = 6.8$), the third one, by leaflets ($\bar{x} = 6.6$), subsequent ones: agricultural films ($\bar{x} = 5.8$), radio programs ($\bar{x} = 5.1$), posters ($\bar{x} = 4.4$), the last place being held by agricultural books ($\bar{x} = 4.1$).

Table 3. Estimated effectiveness of mass advisory methods from 1 (the least effective) to 10 points (the most effective) and hierarchy of their importance (2001)

Mass media advisory methods	Specialists		Generalists		Total advisors	
	$\bar{x}$	hierarchy of importance	$\bar{x}$	hierarchy of importance	$\bar{x}$	hierarchy of importance
Professional magazines	6,9	3	7,0	1	6,9	1
TV programs	7,6	1	6,6	2	6,9	1
Handbooks	7,1	2	6,6	2	6,8	2
Leaflets	6,8	4	6,4	3	6,6	3
Agricultural films	6,4	5	5,5	4	5,8	4
Radio programs	5,6	6	4,8	5	5,1	5
Posters	4,9	7	4,1	6	4,4	6
Agricultural books	4,2	8	4,1	6	4,1	7

$\bar{x}$ – mean; Mo – mode = the most frequent value

4. Characteristics of advisors and farmers and factors affecting the effectiveness of advisory service

Advisory service must be effective, namely achieve the assumed goals of its statutory activities, both in the strategic and operational sense. As it results from research by Boland (1995) the effectiveness of extension work depends, however, not only on the advisors themselves, but also on the farmer. He describes effects in advisory work as a function relationship $E = f(D, O, I)$, where: D – advisor, O – advice recipient, I – mutual material and emotional interactions.

In the opinion of site specialists and field advisors being examined the effectiveness of advisory service is to the greatest extent affected by such characteristics of advisors as, in the following order: ability to communicate with extension clients, specialized professional knowledge, knowledge of the specific nature of the rural environment, professional reliability, practical skills, high school or university degree, sense of organization, friendliness towards people and passion to work in the country (Table 4).

Table 4. Structure of advisors' features (in %) with the biggest influence on advisory effectiveness (2001)

Item	Ability of communication with clients	Specialist preparation for work	Knowledge about rural environment	Job reliability	Practical skills	University degree	Organizational sense	Kindness	Passion for work in agriculture	Other
Specialists	16,6	16,8	14,0	13,	10,	9,8	7,9	6,0	4,4	1,0
Generalists	16,0	14,9	14,4	11,	12,	9,1	7,8	6,6	5,7	1,3
Total advisors	16,2	15,5	14,2	12,	11,	9,4	7,8	6,4	5,3	1,3

On the other hand, characteristics of farmers regarded by advisors as mostly affecting the effectiveness of advisory service are: absorptiveness to agricultural innovations, level of education and available knowledge, entrepreneurship, practical preparation to profession and desire to increase the farm area and production scale (Table 5).

Table 5. Structure of farmers' features (in %) with the biggest influence on advisory effectiveness in advisors' opinion (2001)

Item	Readiness for agricultural innovations	Education and knowledge level	Enterprise	Practical training	Wish to increase the farm and production	Other
Specialists	28,6	22,2	20,7	15,3	10,2	3,0
Generalists	28,0	23,9	17,8	13,3	15,3	1,7
Total advisors	28,2	23,2	18,9	14,0	13,5	2,2

The advisors being examined, among economic, external and internal, factors of a farm affecting the effectiveness of advisory work, regarded the following as most important: confidence in selling agricultural produce, appropriate prices for agricultural products, farm size in the sense of its area and production scale, availability of preferential credits (with subsidy from the state budget), production specialization as necessary to adjust to natural-economic conditions of the farm, good farm equipment and agricultural machines, high quality of soils, availability of inputs and suitable farm buildings.

5. Conclusions

- Agricultural advisors in Poland work in the conditions of a large natural-economic diversity of farms and their structure in terms of area. On average there are 410 farms with average area 7.5 ha of arable land per 1 advisor. It results from research that 1 advisor on average cooperates with 87 farms, namely every fifth statistical farm in our country benefits from extension work.
- The advisors being examined use in their work different forms and methods of advisory services. They regard as the most effective individual advisory service, then group advisory service, in the end, mass advisory service. In individual extension the advisors regard as the most effective the method of extension advice and consultations granted directly to farmers in their farms, especially if these can be provided on the basis of the farmer's business plan.
- In group extension, the advisors recognized the following as the most effective methods, according to the order of importance: field demonstrations and shows, implementation experiments, training courses, work with target groups, work in discussion groups, lectures and seminars, trips and study trips and competitions.
- Within mass advisory service, in the opinion of advisors the greatest effectiveness is demonstrated by such methods of communication as professional journals and television programs. Further places are occupied by: brochures, manuals and instructions, leaflets, agricultural films, radio programs, posters and on the last place – agricultural books.
- In the opinion of the advisors being examined the effectiveness of advisory service is to the greatest extent affected by such characteristics as: skill of interpersonal communications, specialized professional knowledge, knowledge of the specific nature of the rural environment, professional reliability, practical skills, education, sense of organization, friendliness towards customers and passion to work in the country.
- Characteristics of farmers, as noticed by advisors, which to the greatest degree affect the effectiveness of extension are the following: absorptiveness to agricultural innovations, level of education and available knowledge, entrepreneurship, practical preparation to profession and desire to develop one's farm.

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A CRITIQUE REVIEW OF CONSULTANCY COMPETENCY MODEL FOR EXTENSION PROFESSIONALS IN KOREA

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Keywords: Extension professionals, competency model, consultancy, agriculture.

1. Introduction

Competency modeling is increasingly being used in many different fields, particularly in business administration. It has emerged to address the need for competent employees who can perform according to given standards, and for organizations to achieve higher levels of success in the competing world. Consequently, various competency assessment approaches have been developed and applied by researchers (see McLagan, 1989, 1996; Rothwell and Lindholm, 1999; Dubois, 1993; Levens, et al. 2004; Bernthal et al, 2004; Draganidis & Mentzas, 2006; LaRocca, 2009). In agricultural extension competency modeling has also gained interest in order to address ongoing challenges in the agro-business sector. Lack of sufficient resources, complexity of new farming systems and technology, globalization, privatization in extension systems and rapid population growth are only some issues that necessitate the need for using competency modeling approaches in agricultural extension (see Stone and Bieber, 1997; Cooper and Graham, 2001; Liles and Mustian, 2004, Karbasioun et al, 2007a, 2007b). For instance, Karbasioun et al (op cit) have developed a competency profile for the role of instruction of agricultural extension professionals. This study took place in the province of Esfahan in Iran. Shim developed the Korean Extension Consultancy Competency (KECC) model (Shim, 2005). The rationale behind this model was that extension is privatizing and that extension professionals instead of being civil servants are developing as private consultants. This is a major shift in their professional identity, which necessitates a fundamental change in their knowledge, skills and above all, attitudes. Shim, endeavored to develop the most pertinent competency model for the future role of Korean extension agents with highlighting their consultancy function. She, therefore, studied quite a number of extension competency modeling approaches and used Delphi Technique for developing her model. Like any other research, her methodology has its own strengths and weaknesses and in this contribution a more critical review is presented of Shim competency model. As said earlier, both researchers (shim, 2005 & Karbasioun et al., 2007) have independently scored the elements of the research methodology, and the competency model. So, this review of a counterpart competency modeler could help other researchers who are willing to do similar competency modeling research to track most trustable methodologies. They are also notified to avoid the bottlenecks of such studies.

2. ASTD 2004: The Basis of Shim Competency Model

In her PhD project, shim has reviewed a considerable number of previous competency models both in formal environment and in agricultural extension domain (Shim, 2005, pp 13-57). She finally decided to take ASTD model developed in 2004 as the basis of her model. This model is a general and more business oriented model for competency assessment of various target groups. She then, strived to adjust this model through integration of this model with two other above-mentioned models (UK consultancy model and Texas Cooperative Extension model). Karbasioun et al. (2007) also started from ASTD McLagan model developed in 1989 and 1996 and adjusted the model with agricultural extension system in Iran. Although shifting from formal to informal setting was not an easy task to accomplish and seemed risky, they both decided to take the risk, keep the structure and change the contents of ASTD model according to their target group. However, even in the final draft of Korean

extension competency model you still face with the terms/phrases that are not commonly used in informal/non-formal situations like extension area. Karbasioun et al. (2007) experienced too the same dilemma in designing the questionnaire and a part of his respondents complained about their difficulties with interpretations of HRD terms in the first draft of the research questionnaire. Thus, he had to re-phrase, change or delete many terms and sentences. Furthermore, triangulation of the final version of the competency model developed for Iranian agricultural extension professionals and combining the results of various studies was the strategy he used to overcome any bias in the results. As it is seen in below figure the ASTD, 2004 model is like a pyramid which includes three main categories: first fundamental competencies at the bottom; then the focus in the second layer is on technical competences and finally at the third level (on the top), there are roles to be successfully played as a result of applying mentioned competences. Shim's model is nearly the same and she similarly used "fundamental Competences" as the first, then "Task Competences" as the second step and finally "Roles" on the top of the pyramid which are the outcomes of the two first layers of pyramid (competencies). Although she changed the appearance of the ASTD, 2004 model from pyramid to a house, the top-down arrangement was kept the same (see figures 1 & 2).

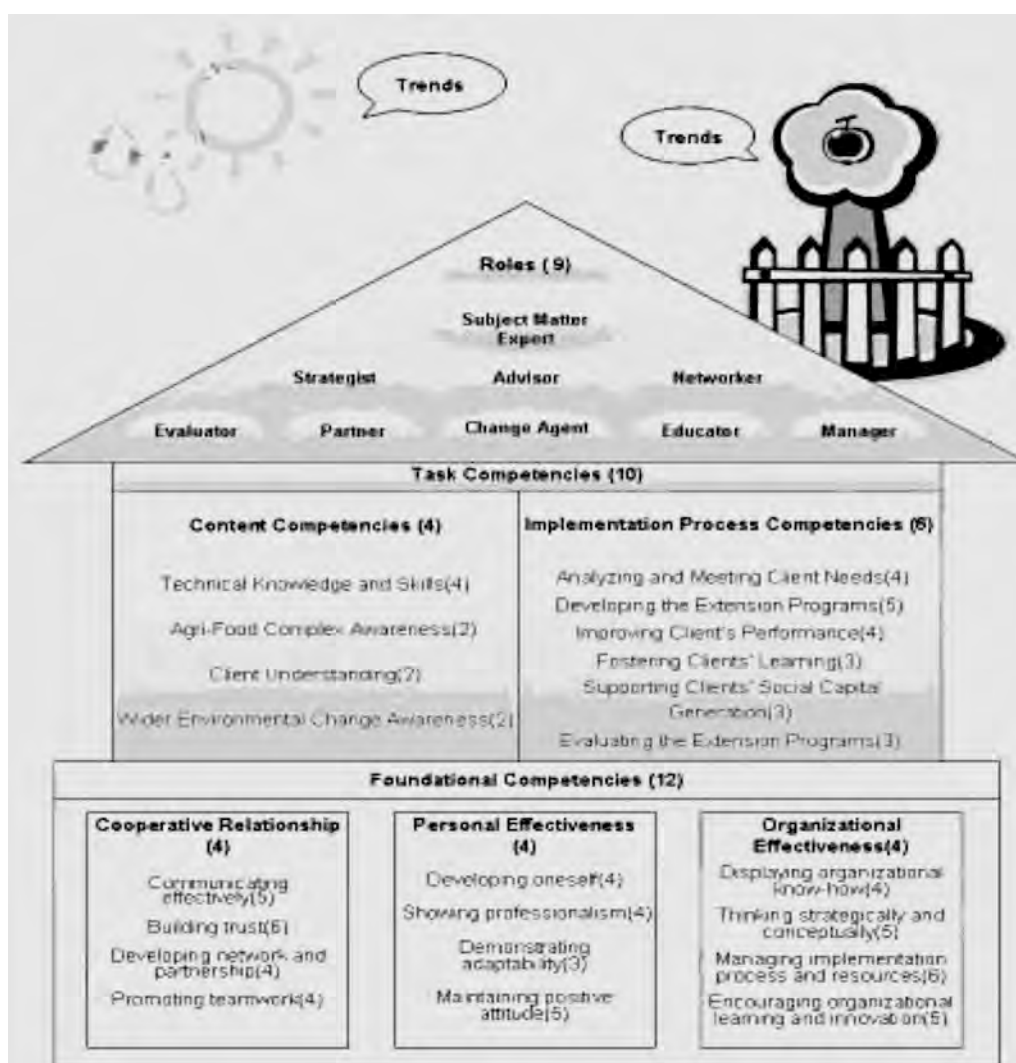
Figure 1. ASTD, 2004 Competency Model (cited by Shim, 2005)



Additionally, she added or replaced more important fundamental and task competences and also roles for extension system with a consultancy tendency in her model. She also considered external factors influencing expected roles of extension professionals in the future. Karbasioun et al. (2007) used the previous version of ASTD model (McLagan, 1989 & 1996) which had more concentration on external factors named "Ethical Issues"

and “Future Forces”. Another difference of the last version of ASTD model with the newer version (2004) was the presence of “Outputs” and Standards which are not separately presented in the 2004 model. Although, all issues are presented in both versions under various titles, nevertheless, the concentration on mentioned factors is not the same. Karbasioun (op cit.) claimed that older version of ASTD model is more fit with informal circumstances like extension system.

Figure 2. Shim Competency Model developed in 2005



On the other hand, Shim (op. cit.) argued the newer version to be better for the consultancy role of extension professionals and also a more comprehensive competency model. However, considering the nature of US competency models in general and the Korean competency model in particular internally suffers from complexity, too many influencing dispersed items, and lack of the focus. As a result, readers gets entangled within a long list of tasks, competencies, roles, and their sub-items; hence, they are hardly able to recognize the real differences of various preferences. For instance what is the major difference between the role of ‘strategist’ and ‘partner’ in the Shim competency model is not very clear. There are many other similar terms and concepts which can lead to misinterpretation. However, this looks quite essential when evaluating Shim competency

model that many terms need to be defined in a separate part. This phenomenon could be noted as an intervening item for the “context robustness” criteria.

3. “Delphi Technique”: Selected Research Methodology

Concerning the research methodology used by Shim, a modified Delphi technique was applied. A number of 23 respondents in the first round and 18 respondents in the second round filled the questionnaires and sent them back to the researcher. While, the number of respondents was enough to get the reliability greater than .8 (Shim, 2007, p. 74) , the low size of the target group and using a modified Delphi technique could prevent generalization of the model to the a large population. Especially, when number of “successful farmers” whose opinions are crucial for the model are few (five in the first round and three in the second as cited in Shim, 2005, p 80). This endangers the ecological and construct validity of the study to be as a national competency model.

4. The Research Questionnaire and its Challenges

According to Shim (2005, p 75), after revising the questionnaire by three experts, final draft of questionnaire was revised and finalized with one hundred and sixty two items. Twenty eight items related to the extension system internal and external trends, twelve items to the roles, seventy six items to the foundational competencies, and forty six items to the task competencies of extension professionals. She herself agrees with the complexity of questionnaire and being lengthy. She then, skips some questions in the first round of Delphi Technique to avoid negative influence of having a long and complex questionnaire on the accuracy of responses. Nevertheless, this fact could be assumed as another intervening factor which impacts to some extent the reliability of research tool.

On the other hand, the Delphi Technique along with all its strengths, has a big limitation and lessens the level of interaction and mutual communication of respondents. While, this interaction is present in other research methodologies like individual and group interviews or structured questionnaires. This means that respondents’ opinions could be absolutely different when personal query is implemented than using a postal structured questionnaire. This is particularly vital when a questionnaire with many new and technical terms are distributed. So, lack of interactivity of the research methodology is another challenging incident that need more deliberations.

5. Conclusion and Recommendations

With all above-mentioned criticisms, shim’s attempt in developing a unique competency model for Korean extension professionals is meaningful. Of course, proposed model needs to be evaluated in practice and until now no international publication or evidence has been presented to show whether her model is properly applied or evaluated in Korea. In terms of exclusiveness, because the model has focused on the consultancy function of extension professionals in Korea, and also due to using Delphi technique, it is scored well. This means that the originality of Shim’s research methodology is appropriate; nonetheless, as already said, its usefulness must be confirmed by practical evidences. Shim’s competency model was an effort of testing a formal HRD competency model for extension system. She incorporated various models in order to develop a unique model for Korean extension system. However, it seems that the appropriateness of developed model for the Korean extension system is still thinkable. For future research it is recommended that the evaluation of this model and also Karbasioun competency model is carefully taken into account. Likewise, it is suggested that Delphi technique is replaced or complemented with other interactive and personal research methods like structured and un-structured interviews, group discussion sessions, experts’ panels etc. Regarding research tool, the research questionnaire needs to be shortened, simplified and focused. One of the solutions could possibly be developing competency profiles for every role of extension professionals separately. In addition, farmers’ opinions are not that significant in Shim study while they are major audience of extension system and have a lot to say about the

competencies extension professionals should possess. Therefore, more attention to farmers' perspective is also proposed in further research. After all, we believe that many questions are important and still not sufficiently discussed in this contribution. Questions such as: What is the cultural bias of employing Western literature for Eastern practices like what Shim implemented in her research? To what extent KECC-model has proper institutional links with the Korean extension system? Which combination of respondents of such extension competency development research is proposed for the future studies? These questions will obviously be addressed later in a more in-depth review of Shim competency model in a journal publication format.

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EMERGENCE AND EMBEDDING OF INNOVATION BROKERS IN THE AGRICULTURAL INNOVATION SYSTEM

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Keywords: Innovation brokers, multifunctionality

1. Introduction

Innovation is regarded as key to survival in the current agricultural sector (Hall et al., 2006). As regards the support of innovation in the agricultural sector, in the last two decades, large-scale transformations have affected the agricultural knowledge infrastructure in many countries. This has three important consequences: first, multifunctionality of agriculture entails a more heterogeneous knowledge demand. Tailor-made knowledge is needed. However, current research and extension systems would still not fully and integrally address these multiple demands (Laurent et al., 2006); second, the privatization and other reforms of public agricultural knowledge infrastructures has entailed a switch from supply-driven to demand-driven knowledge provision. However, it has also induced increasing strategic behavior and closure of the knowledge system (Leeuwis, 2000; Garforth et al., 2003); third, it has become recognized that the agricultural knowledge infrastructure forms part of such an agricultural innovation system, but is not necessarily the principal driver. The innovation systems concept emphasizes the need for broad network building among public and private actors and also focuses on enabling and constraining factors for innovation other than knowledge, such as physical ‘hard’ infrastructure and social ‘soft’ infrastructure, including institutions such as informal norms, values, attitudes and practices, and formal rules embedded in legislation and policy (Hall et al., 2006).

2. Challenges emerging due to this new context

The change to a heterogeneous market for research and extension, and the adoption of an innovation systems perspective, requires institutional change and capacity building at both sides of the market in research and extension (Garforth et al., 2003), and has implications for several actors preoccupied with agricultural innovation. For farmers and other agri-chain actors it implies that they need to articulate innovative ideas and visions in which they integrate productive, economic and societal needs, and corresponding demands with regard to knowledge and other innovation enabling factors. They have to find suitable research and extension providers and other cooperation partners, select these, and interact during the subsequent innovation process. However, many farmers experience an ‘information overload’ and have difficulties acting successfully on the market for research and extension and sometimes lack skills to successfully manage innovation (Garforth et al., 2003; Laurent et al., 2006). For research and extension providers it implies that they have to put effort into procurement in a market that is increasingly pluralistic and also served by non-traditional, non-agricultural research and extension providers (Phillipson et al., 2004), and become responsive to the needs of their clients. The paradigm of demand-driven research and extension service delivery implies a shift away from mere technology transfer, to the provision of a broader range of communicative functions and advisory services (Leeuwis and van den Ban, 2004). There are hence several ‘gaps’ from a market and innovation system interaction perspective. With regard to the nature of these gaps, one can identify cognitive/cultural gaps (actors from different institutional backgrounds have too much cognitive distance to adequately learn together, or have different norms, values and incentive systems which hinder effective communication), information gaps (actors are imperfectly informed about possible cooperation partners), and managerial gaps (actors are unable to acquire and successfully implement new knowledge), and a ‘system gap’, which is related to issues like system lock-in, i.e.

resistance of incumbent agri-food systems to accommodate innovations, and deficient innovation system linkages.

3. The emergence of innovation brokers

As a response to suboptimal linkages in agricultural innovation systems, several authors have argued that, in the context of a pluralistic (market-based) research and extension system and from an innovation system perspective, 'systemic intermediaries' are needed (Aflakpui, 2007; Spielman et al., 2008). These should connect demand and supply for agricultural research and extension services, as well as fulfilling other bridging functions with the broader innovation system (i.e. between farmers, education establishments, government, agri-industry (both suppliers and processors) and advocacy organizations). Howells (2006) introduced the broad term innovation intermediary for such a systemic intermediary, which he defines as an organization or body that acts as an agent or broker in any aspect of the innovation process between two or more parties. Basic functions include problem/challenge diagnosis (demand articulation), partner search, selection, and matchmaking (network composition) and facilitating the multi-stakeholder learning process (innovation process management) (Klerkx and Leeuwis, 2008; 2009a). To distinguish these intermediaries from extension and research providers who may also provide such innovation brokerage tasks as a side-activity (Howells, 2006), we adopt the specific term 'innovation broker' (Winch and Courtney, 2007) for this type of organizations. Although some studies have been undertaken to describe and analyze such specialized independent innovation brokers or 'free actors' in the agricultural sector (e.g. Phillipson et al., 2004; Spielman and Von Grebmer, 2006; Hartwich et al., 2007; Wielinga and Vrolijk., 2008), relatively little analysis has focused on providing an overview of the different types, their effects, and describe how they become embedded within the privatized agricultural knowledge infrastructure.

4. Innovation brokers in the Netherlands

On basis of an integration of several separate analyses (see Klerkx and Leeuwis, 2008; Klerkx and Leeuwis, 2009a; Klerkx and Leeuwis, 2009b, for more detailed information), 7 different types of innovation brokers in the Dutch agricultural sector have been identified at different levels of system aggregation, which wish to address different ambition levels of innovations (incremental, radical, system innovation, societal transitions) and connect different kinds of actors such as farmers, input suppliers, processing industries, research and extension providers, government, and civic advocacy organizations and enhance their interaction from as a neutral facilitator. Most of these organizations receive direct basic funding from government or collective funds, or receive indirect public funding through subsidized innovation projects. Only few work with private funds. Table 1 provides an overview of the organizations.

5. Positive contributions

Innovation brokers are valued because they operate from an independent and neutral 'third party' position as regards to the problems and challenges addressed, the partners to be involved, and their interests during the innovation process. In the sphere of demand articulation, they innovation brokers helped farmers and other agri-food stakeholders to think about new possibilities to sustain their businesses. Because of their unbiased position, innovation brokers appear to provide a fresh look at diagnosing the constraints and opportunities of farmers or, at a higher level, production chains, regions, or sub-sectors. Because innovation brokers are critical and provide a mirror for self-reflection, they tend to force their clients to look towards the possibilities beyond their current situation and constraints. In the sphere of network building, there are numerous examples where innovation brokers have helped farmers, and others that want to initiate innovation projects, to get in touch and negotiate with project partners and other relevant stakeholders from the policy, market, and civil society domain, as well as with suitable knowledge providers who could assist them in orienting towards new activities, including more

than just the traditional research and extension providers. They hence make a variety of sources available; this is essential for developing the new combinations that are central to innovation.

Table 1: different types of innovation brokers (derived from Klerkx and Leeuwis, 2009a)

Type	Examples
1) and 2) Innovation consultants aimed at individual farmers (1) and collectives of farmers (2) and aimed at incremental innovations	Agricultural Knowledge Centre Noord Holland ^{##} /Agricultural Knowledge Centre Flevoland ^{##} , Agricultural Knowledge Centre Zuid-Nederland ^{##} /Agricultural Knowledge Centre Zuid Holland ^{##} /Innovation Support Centre Wageningen ^{##} /Syntens Agro/Stimuland,/LaMi,/ Agro&Co/Food Valley Innovation Link/Horti Solutions [*] /Poultry Centre/Cropeye/ Innovation Support Point Zuid Limburg ^{##} / KnowHouse/ Agri-chain Knowledge ^{##} / Grower's Service Technology Department [#] / Platform Agrilogistics/Support Point Care Farming [#] / Knowledge Alliance [#]
3) Peer network brokers forging farmer networks for horizontal learning (comparable to e.g. farmer fields schools)	Dairy Farming Academy [#] /Horticultural Cluster Academy [#] /Pignet [#] /Program Networks In Animal Husbandry [#] / Versatile Countryside Academy [#]
4) Systemic instruments for forging public-private multi-actor alliances for radical innovations	Courage/ Greenhouse Horticulture Innovation Foundation [#] /Innovation Network Rural Areas and Agricultural Systems [#] / Transforum/ Eggnovation/ Germination Power [#]
5) Portalsites that offer an overview of relevant goods and services and enable virtual interaction	Ziezo.Biz/Knowledge on the Field [#] /ExperienceBox/Bioknowledge [#] /Knowledgefield [#] /AgriHolland
6) Research councils with innovation agency that program and facilitate demand-driven participatory research	Bioconnect / Transforum
7) Practice-education brokers that provide education establishments with the latest insights from practice	Green Knowledge Cooperative [#] /Content broker [#] /Flower Bulb Academy [#] /Knowledge Counters Brabant [#]

[#] Names have been translated from Dutch where appropriate.

^{*} These organizations have ceased to exist.

At the system level, they have contributed to the development of innovation agendas, and radical and/or system innovations to meet future challenges, by performing foresight exercises and initiating innovation projects that bear a high risk of failure. This has resulted in several new concepts, some of which were initially regarded with suspicion and disbelief, but now have become viable new development strategies. Finally, it has been confirmed that innovation process management is an important function that can be performed by innovation brokers. Innovation processes tend to involve different groups of actors, with different expectations and interests determined by their institutional background. For example, farmers often want instant access to applicable knowledge and quick results, research providers have an interest in undertaking (publishable) research, policy makers want to realize their policy goals and see the results of public investments. The interested parties thus differ with regard to the time horizons of projects, and the desired output. Innovation brokers have clearly

facilitated cooperation and managed to synchronize expectations of different actor groups during a number of innovation processes. They have reportedly made the different project partners aware of their institutional backgrounds and expectations, and of the role they can fruitfully play in the innovation process. Moreover, they have been successful in making transparent the risks and benefits that are attached to engagement in the innovation process. This is especially useful, because by doing so they contribute to reducing uncertainty in the early stages of innovation processes when there is a high risk of failure. In addition, they act as a “translator” between the different cultural worlds and perform mediating roles in the event of conflict about, for example, the attribution of intellectual property rights, strongly diverging goals and visions, or the division of funds. The involvement of innovation brokers in innovation processes hence avoids inertia and accelerates the process by helping project members maintain their focus and energy during the process. Beyond the level of the single project, innovation brokers fulfill a catalyst role (to bring about change and stimulate cooperation), a liaison role (e.g., to inform policy) within the agricultural innovation system, and also an innovation capacity building role.

6. Tensions as regards their functioning

Despite that these brokers are seen to have a positive effect as a knowledge infrastructure and innovation system catalysts, there are several tensions with regard to their embedding which have important policy implications.

First there is a ‘neutrality paradox’: innovation brokers often need existing parties and networks for referral and matchmaking purposes, but may also need to destroy existing networks to make new combinations, which threatens their credibility as neutral brokers. Furthermore, they have to balance the interests of different parties in their role of brokers (e.g. clients, financiers), to maintain their social and financial resources and hence future brokering flexibility. However, resource dependencies towards financiers such as government or research institutes may force them to allow topical steering by certain parties which has implication for their perceived neutrality by others, such as farmers and other research and extension providers. Second, there is ‘function ambiguity’: some functions, especially those that go beyond demand articulation and network formation, and deal with the facilitation of established networks are seen to be similar to those that existing research and extension providers offer. Also, innovation brokers have to balance the dilemma that they need sufficient topical knowledge to be credible for network participants, but too much knowledge on the subject makes them a threat to experts and may be conducive to get a too narrow focus (lock-in). It appears that due to unclear images of what is the actual role of an innovation broker, in the Dutch agricultural knowledge infrastructure, innovation brokerage as an autonomous role for a dedicated organization has not yet been fully accepted. Third, there is a ‘funding paradox’: whereas innovation brokers wish to tackle various market and systems failures in the agricultural knowledge infrastructure, they suffer themselves from the same systems and market failures, including the difficulty for clients and financiers to grasp their activities which are quite invisible and intangible, assess the effect of their activities on the innovation. Related to this there is ‘funding impatience’ due to which funding is withdrawn too soon. This causes innovation brokers to collapse, or become ‘traditional’ extension providers to survive in the market, hence losing their systemic function.

7. Conclusion

Because in many countries network building and facilitation for agricultural innovation is seen as a principal challenge, innovation brokers may be a valuable new type of organization in the agricultural knowledge infrastructure. This calls for policy with regard to innovation brokers as an agricultural innovation policy instrument. The abovementioned tensions prompt a critical evaluation of the role that government has to play as an innovation system facilitator by supporting innovation brokers. Arguments in favor of government support include the difficulty of making the basic functions of demand articulation and network formation self-sufficient; the contribution to innovation system interaction and the role as catalysts of innovation, and the fact that

innovation brokers can more neutrally fulfill the role of facilitator than parties that have a substantive stake in the subsequent research or innovation process. Nevertheless, there are also some dilemmas in this regard, which include 1) the justification for public spending on innovation brokers, as impact evaluation appears to be difficult, 2) the proper demarcation of the mandate of publicly financed innovation brokers, as activities that go beyond demand articulation and network formation are sometimes perceived as competition by traditional research and extension providers, and 3) the risk that due to resource dependencies the innovation broker may become a more or less 'hidden messenger' for government or another party which is detrimental to its credibility and maneuvering space as a neutral facilitator and 'free actor'.

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RURAL EXTENSION NETWORK IN EUROPE (RENE): EXCHANGE OF EXPERIENCE IS CROSSING BORDERS

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Keywords: Extension service; networking, exchange of experience, border crossing, empowerment, Interreg.

In the Interreg3c-network-project RENE for exchange of experience since 2003 about 3,500 participants from 87 different regions and countries in Europe are transporting project results such as examples of best practise not only into 184 different public institutions with about 50-2000 employees each, but also to the public in their regions. Main target groups are rural extension worker/advisors of local, regional and national level. Since 2003, 59 events (workshops, trainings, up-date-meetings, study visits, partner meetings and congresses) are the main instrument for up-grading the level of information, of exchange of experience, of know-how-transfer and training of these professionals.

Interreg is part of the European Territorial Cooperation Objective of the Structural Fund policies. It is divided into a, b, and c program-types: "C" aims, by means of interregional cooperation, to improve the effectiveness of regional development policies in general and intends to contribute to economic modernization and increased competitiveness of Europe, by:

- Enabling local and regional actors across the EU to exchange their experiences and knowledge;
- Matching regions less experienced in a certain policy field with more advanced regions;
- Ensuring the transfer of good practices into Structural Funds mainstream programs.

To be accepted in Interreg with a proposal for rural areas extension workers promotion was a minority in the 3rd generation(2000-2006) and is almost excluded in the 4th generation(2007-2012) of Interreg-c-projects because EU-responsibilities for rurals are located in the competing EU-Commission's unit for agriculture. Unfortunately the EU-agricultural unit had had no similar program available at the starting time. Only in 2008 this unit started "ENRD(European network for rural development)", a top-down approach by establishing a "EU-contact-point", a follow-up of the last "Leader"-generation to exchange experience with all rural actors and in the future with some similar topics as RENE, but with a formal, government orientated fact-finding-mission and no spirit of self-organising actors.

These are the most representative, innovative high lights of RENE: 1.: 220 participants in the congress in Vilnius, Lithuania which has been organised by our Lithuanian partner in cooperation with a DG-Research/World bank project for evaluation of rural policy implementation influencing structural change in rural areas. It was the most successful transfer of knowledge between extension services, science and consulting for program making policy. Participants from 28 countries and 53 new institutions, including World Bank and western Balkan countries have been involved. 2.:The first biogaz congress in Amiens, Picardie, France, realised by the French and Lower Saxony Chambers of Agriculture in public-private partnership with 15 innovative SMEs as exhibitors, all together 300 participants. They created a new standard for regional transfer of knowledge in combination with marketing of innovative products for rural clients. In the future Picardie will be accepted as pilot region for renewable energy implementation of innovation for French speaking countries. 3.: FÜAK Bavaria realised a workshop with 60 participants from 8 countries for innovation in agro-tourism. FÜAK intends to create a European centre of Excellency for innovation in agro-tourism in the future. 4.: Innovation for methodology and marketing was the topic of "LLH", the Hessian partner's workshop "How to sell advisory service" with 61 participants from 4 countries. 5.: "AGRIDEA" in Switzerland realised a workshop for

innovative, participatory approaches for rural community development with more than 40 participants from 13 different nations of Europe, Asia and Africa. 6.: Mosonmagyaróvár West-Hungarian University every year has more than 60 participants from all Balkan countries for "young advisors workshops" with actual topics on innovation in extension services. 7.: Reinhardtsgrimma in Saxony every year has become a centre of excellency for rural development advisors with more than 70 participants each from all new member states for exchanging experience how to improve implementation of different rural and regional EU-programmes, including structural funds. 8.: The Leadpartner of RENE, the Chamber of Agriculture in Lower Saxony is involved to combine innovation for extension services with more than 15 different Interreg projects for management of natural resources, mainly in the North-Sea-Region

1. RENE excursion in Lower Saxony



19 institutions/extension services from 14 countries are taking part actively in RENE by identifying the demand and realising events. They come from, from Austria, Belgium, Bulgaria, Czech Republic, France, Germany, Hungary, Italy, Latvia, Poland, Spain, Lithuania, Denmark and Switzerland. They are all public, some of the authorities, some are public equivalent bodies. Private organisations, by Interreg rules have not been allowed to participate. RENE website is an additional support to communicate these events www.rene-net.org and for details of the partners.

The most important benefit for extension workers participating in this Interreg project RENE is to be involved to the only European policy instrument which is looking for European added value first. Before RENE for most of the partners EU-policy in general only was known as either structural funds or CAP(common agriculture policy) looking for the best benefit for the region or for individual farming at home, the so-called 1st pillar of the EU-CAP(common agriculture policy) Crossing borders isn't part of these operations. Now, with their Interreg experience, rural extension workers became promoters of the European spirit because of knowing approaches, working conditions, best practise and policies from across borders in about 20 different regions of Europe. With this step they arrived at a similar level of comparing public management knowledge as politicians in former times. Now they are asked as experts. RENE therefore has realised European capacity building and empowerment for this target group of rural extension workers. Beside this main target group for the partner's financial units of public bookkeepers an important lesson learnt is to handle EU project funding in respect to common rules. In former times only universities or consultants have been used to. The most important internal added value for all target groups is the learning process by respecting different cultural traditions of public, rural extension services and the handling of reforms elsewhere. "Coming out of an Interreg project, public staff is open up minded and flexible for fast changing job conditions and creating interregional contacts by themselves". This is the opinion of most of the partners staff managers. Project results therefore can be described as capacity

building and empowerment in an interdisciplinary sense: not only technical but also intercultural. For the RENE-Leadpartner, Chamber of Agriculture in Lower Saxony this operation was the starting point to be involved for innovation of extension services in more than 15 different European projects (Interreg, Life+ ...) most of them for management of natural resources till now.

2. RENE kick-off-meeting at the Chamber of Agriculture of Lower Saxony in Oldenburg



Challenges have been to involve partners from new member states and from Kaliningrad: only step by step was the strategy. The Bulgarian partner was forced to be a second class partner without EU-budget. None of them has been prepared to realise Interreg projects. Conditions of being eligible partner have been different for the partners. This learning process has slowed down their passive participation and active planning of activities for their own for the 5 first reporting periods. All partners had had serious internal changes in organisation and management structures.

Main objectives of RENE have been: - 1. Exchange of information, experience and know how concerning rural areas development via extension services and advisors. 2. Contributing to a better synergy of programmes in rural areas has been achieved continuously more inside the sector, but not outside, more in the "old" than in the "new" member states. 3. Strengthening know-how and experience of public and semi-public rural extension institutions dealing with these programmes: 1. to 3. had been behind schedule because of starting problems, auditing problems and internal change of organisation at nearly every partner, dropping out of inactive partners and extra efforts to integrate new partners. Sub-objectives are: 1. Providing platforms and instruments for communication and exchange between rural extension organisations in Europe: RENE events are well known and welcome by the professionals and the politicians. At the formal end of the project it has been a hot spot for political and scientific involvement, innovative activities and marketing of SMEs innovative products for rural clients. Beside that there are the main instruments of communication, transfer of methodology know-how and innovative approaches to rural extension workers, strengthening know-how, keeping rural actors up to date concerning regional policy developments, capacity building of rural extension work in the "new" countries, exchange of experience and information on different themes and innovative technologies, e.g. regional and agricultural policy instruments, structural funds for 2007-2013, management of natural resources and renewable energies. Strengthening regional policy know-how transfer, extension workers are bordered by EU-CAP-control activities and competency restrictions which have been added to their day-to-day work without extra staff

because of reduced public funding .- There is a broad dissemination of results all over Europe by the participants, newsletter, e-mail and website. The first project period(2003-2007) was a pilot for innovation and a kick-off to this target group of rural extension service professionals.

3. RENE excursion with our Swiss partner “agridea” in Switzerland



Now, in the follow-up period of the project, consolidation and professionalism of the EU-wide exchange of experience is the main target. This is first of all complemented by EU-Commission at the ENRD-contact-point activities. RENE partners take part of it by participating in these events in the future and with contributions as experts, but handled with a traditional top-down approach. The spirit of self-organising rural actors (except scientists) crossing language borders runs risk to fall back into the different language families of Europe, without external, public support. English on the professional level has not become the crossing boarder support for the majority of extension workers in rural areas. Within the different language families, fortunately ideas continue to be developed cross boarder even without public EU-funding: standards for training and soft skills for rural extension workers have been developed (CECRA-Project) in cooperation of Swiss, Austrian and German partners. The efficiency of rural extension service systems has been compared in the “RECA”-project for 6 countries. Chambers of Agriculture in 13 countries of Europe with more than 14 000 employees created an informal platform to continue exchange of experience. The initial German speaking mother network of RENE, called “IALB” (Internationale Akademie ländlicher Berater”) is continuing to work within the German language family. A structural integration of all these different activities Europe-wide, continuously and in a long run will be a challenge for the future.

PRIVATIZATION OF AGRICULTURAL EXTENSION, SOCIAL COHESION AND IMPLICATION FOR RESEARCH AND EXTENSION SERVICES: A COMPARATIVE ANALYSIS BETWEEN BENIN AND THE NETHERLANDS

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Keywords: Benin, multifunctional agriculture, privatization of extension, social cohesion, The Netherlands.

1. Introduction

There is a worldwide consent on the multi-functionality of agriculture (MFA) (Krinke and Boody, 2001; Jervell and Jolly, 2003; Hediger, 2006; Renting et al., 2009). However, whether it is possible to perform these functions simultaneously remains a controversial issue (Pretty, 1999). Indeed, beyond its primary function of production of food, fibre, hides, timber, and market-related activities such as trade, agriculture has many other functions sometimes called non-food products (Bohman et al., 1999). Krinke and Boody (2001) distinguish environmental, social and economic benefits of agriculture. More explicitly, according to Bad DeVries (2000), specific aspects of multifunctional agriculture are viable rural communities, environmental benefits, food security, landscape values, food quality and safety and animal welfare. Farms may be socially and culturally embedded in local community, and contribute to local community vibrancy (Lobley, 2003). The achievement of one function without compromising the other is a great challenge. Promoting economic roles of agriculture can disturb landscape and environment (Akca, 2005), as well as environmental policies may impact farms' profitability. It is widely recognized that such an integration of functions imply new knowledge to be produced and new extension services to be proposed to farmers.

At the same time, there is a large trend of liberalisation of extension services in both South and North countries with the expectation to improve their effectiveness and efficiency. However, few researches tackle the question of the impact of such policies on MFA (Romstad et al 2000). Some research show that extension privatization tend to deconstruct the collective procedure for knowledge creation and could be at the detriment of MFA (Labarthe and Moumouni 2008). This paper aims at analyzing and comparing the impacts of the privatization of agricultural extension on the specific question of social cohesion in Benin and the Netherlands. As the understanding functions could vary according to socio-cultural and socio-economic conditions, it is worthy comparing the consequences of the privatization in different contexts to point out general trends.

2. Theoretical and methodological framework

“Social cohesion is a state of affairs concerning both the vertical and the horizontal interactions among members of society as characterized by a set of attitudes and norms that includes trust, a sense of belonging and the willingness to participate and help, as well as their behavioural manifestations” (Chan et al., 2006, p.290). Horizontal (within civil society) and vertical (State-Citizen) cohesions can be distinguished. Social cohesion is referred to as a characteristic of a society dealing with the connections between societal units such as individuals, groups, associations as well as territorial units (McCracken, 1998). Social cohesion includes aspects such as the strength of social relations, shared values, feelings of a common identity and a sense of belonging to the same community, trust among societal members as well as the extent of inequality and disparities (Woolley, 1998; Jenson, 1998). Social capital incorporates two societal goal dimensions. The first dimension concerns the reduction of disparities, inequalities and social exclusion while the second one concerns the strengthening of

social relations, interactions and ties (Berger-Schmitt, 2000; Chan et al., 2006). However the operationalisation and the use of the concept of cohesion vary according to national and regional contexts countries. At the local stage in Benin, social cohesion was analyzed at family, community and intercommunity levels. At familial level, social cohesion displays by the fact that the household is a production, consumption, habitation and solidarity unit. In this paper, we addressed social cohesion at the two first levels for Benin. In the Netherlands, the conception of economic and social cohesion is quite different, as it is a core concept of the construction of the European Union. It is based on the idea that the fight against economic inequality within the European and countries' regions is required for making and implementing successful common policies. In this paper, we focused on the social inequality and exclusion dimensions of social cohesion. One may wonder what the consequences of privatization of agricultural extension for economic and social cohesion in both socio-economic and policy condition could be.

Our data originate from two studies undertaken at local and national levels in Benin and in the Netherlands. In Benin, specific investigations were carried out in Banikoara district, which ranks first with respect to cotton production in the country (Mairie de Banikoara 2002). In the Netherlands, we used data from the province Zeeland, first with respect to cereal production in the country. We performed comparative and historical perspectives to analyze the impacts of the privatization of agricultural extension in Benin and in the Netherlands. However, our purpose was not to undertake a term-by-term comparison as conditions and situations are quite different. Global comparison of both case studies made it possible to come out with commonalities.

3. Results and discussion

3.1. Agriculture and social cohesion before privatization

Before privatization, extension services contributed to social cohesion in Benin and the Netherlands. In Benin, public investments for agricultural extension did not clearly and specifically mention social cohesion as objective.

However, life in rural areas relied on agriculture and strong social relations and structures were developed around at family and community levels. Grand-father, his wives and sons, sons' wives and children usually belonged together to a same production, consumption and habitation unit. Even in the case when adult members had their own small cotton field, there allocated most of their working time to collective farm activities. Solidarity supported social cohesion of the household. Agricultural development was implicitly expected to strengthen socio-economic cohesion. Public organizations offered agricultural extension services to households and investments and considered explicitly both food and cash crops. Solidarity between members supported social cohesion of the household. At community level, mutual help such as the *wuru* as well as one-way support (helping friends or neighbours without expecting immediately something in return) in agricultural activities strongly prevailed.

In the Netherlands, Agricultural extension has clearly been a tool for both supporting the growth of productivity and strengthening social cohesion since 1880. The effects of extension systems on farm structure were discussed within an agricultural council including three farmers' associations. These associations represented different social groups of farmers, including small farms. This resulted in investments in specific extension services for small farms, such as *The Dienst voor Kleine Boerdereijen* (DKB, literally: services for small farms). This was the result of the willingness to support productivity growth in the less modernized regions and for the less modernized farms, which could benefit thanks to DKB from intensive interactions with dedicated advisers, in order to follow trajectories of intensification of their production systems. Thus, extension services were explicitly aimed at reducing inequalities between farmers, and thus contributed to social cohesion in rural areas.

3.2. Agriculture and social cohesion after privatization

Privatization of extension in 1992 in Benin led to partial withdrawal of public organization and the involvement of private actors, NGOs, farmer organisations and development projects in providing and funding extension services.

These new stakeholders focused on cotton as the most profitable cash crop. Extension agricultural services addressed cash crops mainly and food security secondarily. The privatization oriented farmers towards the production of cash crops to the detriment of food availability and quality. Farmers had easier access to advices, inputs and market with regard to cotton cultivation. The idea to cultivate cotton, to earn money and to buy food emerged and developed within the farmer community. No clear objective and role were assigned to agricultural services with regard to its potential consequences on social cohesion. Consequently, mutual help as well as one-way support went down after the privatization. Solidarity principles were being replaced by the one of “every man for himself”. Household dismemberment and social conflict in farmer organizations are two important transformations due to the promotion of cotton. (i) The misunderstanding on sharing cotton revenues resulted in disrupting social cohesion. Young people left their parents and set up their own household to access directly to their earnings. In cases where everyone had his own separate cotton field, household members found hardly time to allocate to the common food crop farms. (ii) Farmer organisations had been given a sense of responsibility in the framework of the liberalisation reform. They were in charge of managing cotton inputs, marketing, distributing earnings to members and allocating plus-values to different socio-economic projects (wells, schools, hospitals, etc.). Due to the bad management and embezzlement, tensions and conflicts arose in several farmer organizations. Tensions and conflicts altered heavily the social environment in farmer community making collective actions less and less effective. On the other hand, cotton revenues were massively spent on common ceremonies such as death and marriage ceremonies.

These events important from the local people perspectives gathered family and community members and contributed to strengthen social relations.

In the Netherlands, the privatization of extension occurred in the early 1990. After a century of public investments in agricultural extension, agricultural entrepreneurs were supposed to be able to finance the services that they needed. This radical transformation of agricultural policies had strong implications for the contribution of extension to social cohesion: (i) extension tends to be more individual with less collective and open circles of farmers exchanging information; (ii) some populations of farmers can be excluded from accessing to services (for instance, small farms could afford neither commercial extension nor services from input suppliers); (iii) there are less and less institutions and loci of debates about the definition of the target public of extension services. This trend could be at the detriment of small farms (Labarthe and Laurent, 2009) and thus increase inequalities within rural areas

4. Conclusion and implications

Both contrasted case studies show that the privatization of extension impacted negatively on the social life, specifically on social cohesion, regardless socio-economic conditions. Policy makers and development workers often tend to focus on technical and economic expectations and neglect the impacts of institutional reforms such as privatization on social cohesion. Designing a reform by setting goals related to agricultural production and income only appears to be an oversimplification of the agrarian reality: i) it tends to focus on extension short-term effects on farms' individual performance at the detriment of collective long-term effects (learning, etc.); ii) it ignores extension differentiated impacts on different groups of farms. Therefore, the impact assessment of policies of privatization of agricultural services may consider all the functions that agriculture performs (including social cohesion); and the diversity of farms that contributes to these functions.

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THE PROPENSITY TO CONSUME AGRICULTURAL SERVICES: LATENT AND REAL DEMAND IN DIFFERENT TERRITORIAL CONTEXTS

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Keywords: Extension services, agro-food district, rural district, Italy.

1. Introduction

Recent rural development policies aim at stimulating a new paradigm of rural development, with a new role for agricultural activities. A completely renewed set of opportunities is available for agricultural sector, to “reinvent” the rural. If well exploited, these options could be a relevant tool for improve agricultural activity through the diversification of production, the introduction of sustainable practices and the qualification of agricultural products. Then, differently from the past, today the farmer is an “active consumer” of rural development policy: a strategic decision is necessary to get access to rural development policies. New opportunities for farms are then opened; if well exploited, they permit new paths of development that could be represented as results of a boundary shift (Banks, Long, van der Ploeg, 2002). It engenders the farm exit from its traditional boundaries, along three different paths (fig. 1).

Fig. 1 - The boundary shift



Fonte: Banks, Long, van der Ploeg, 2002

The first is called deepening, which implies the expansion of farm activity toward high quality and high added value products (organic farming, typical production, farmers’ markets, etc.). The second path is termed as broadening, because it implies the farm diversification, to comprehend a set of activities aimed at preserving territory, new farm activity (rural tourism, educational and social farms, etc.). The third process, called regrounding, concerns dynamics involving farm and territory that realize through both the integration between farm with off-farm revenues and through the internalisation of production of inputs previously off-farm acquired. To follow each of these paths rural development policy make available for farms new tools of development: a high level of alertness is needed to be conscious of the new opportunities (Kirzner, 1973).

Different paths of development could be fruit of different context where farm operate: in rural marginal areas we could find distinct trajectories with respect to urban areas, or area with intensive agriculture. In this context the role of services for the agricultural development has been recently revalorised: recent rural development policies,

in fact, predicts an important role for extension and technical assistance to farms. This role is not limited to “traditional” good agricultural practices and for the compulsory management criteria, but for a numbers of other interventions too, aimed at qualifying agricultural products, to foster farm diversification and other strategies incorporated in the new philosophy of rural development. Besides, the same concept of innovation and the way to incorporate innovation within farms is completely different from the past: a circular endogenous and integrated mechanisms substitute the previous linear processes of innovation (Soete, Arudnel, 1993). In this sense, education and extension become a step of a more complex system of knowledge diffusion.

This generates effect both on demand and supply side: on the demand side, that generates either an increase in the demand for agricultural services or a deepening of the variety of services to be offered; on the supply side, the typology of services offered needs to be renewed in the light of the new hypothesis of agricultural and rural development. However, not always the supply of extension and education is adequate to the farmers’ instances, above all among farmers operating in areas with high degree of rurality. This determines an asymmetry between demand and supply or, more precisely, between actual supply and latent demand: latent demand is the clearly expressed demand by potential users: that is particularly true in diversified territorial areas, characterised by a conventional and modernized or a not homologated agriculture.

Our contribution fits in this context and aims at describing the demand for agricultural services in two different areas in region Lazio (Italy): the first area is characterised by a conventional model of agriculture, based on the modernisation paradigm; the entrepreneur manage professional, market oriented farms. The other area is a typically marginal area with high problems of development and with underdeveloped farms which need for a diversified set of services.

The paper intends to analyse change in demand/supply structure of agricultural services from two points of view:

1. firstly, an analysis of the propensity to “consume” agricultural services will be conducted in the two areas under study. A socioeconomic analysis of farms will be useful to test possible differentiation in the intensity and typology of consumption among farms on the basis of structural and socioeconomic variables, besides the territorial ones;
2. secondly, a classification of farms on the basis of the access to agricultural services will be proposed to highlight the presence of differences between the two districts.

The analysis will allow extrapolating useful information about adequateness of the actual supply of agricultural services and, in a normative perspective, to identify possible actions of economic policy.

2. Methodology

To get information from the entrepreneurs, a questionnaire has been submitted to a reasoned stratified sample of farms. The farms are localised within two different districts: the first is an agrofood district (AFD), in the province of Latina; the second is a typical rural district (RD) operating in the province of Frosinone (both provinces are in the Lazio region of Italy). The AFD is characterised by an intensive agriculture, specialised in two essential sectors: fruit and vegetables on the one side, and bovine and buffalo breeding on the other side.

The RD is characterised by alternative kind of agriculture and by the presence of small and niche production integrated within endogenous rural development models, driven by a Local Action Group promoted within the Leader initiative. Our hypothesis is that demand and supply of education and extension should be differentiated on the basis of the different models of agriculture.

The questionnaire is articulated in the following sections:

1. general information about farm;

2. family and work;
3. agricultural activity;
4. administrative management;
5. technical organisation of productive processes;
6. intensity and way of relation between farm and assistance agencies;
7. innovation and source of information for farm.

The first part is devoted to typologies of farms, through the acquisition of the main information about the farm and the family structure. Then, the agricultural activity is investigated.

The second part focuses on the role of agricultural services in fostering possible boundary shift and, generally, in determining farm's development. In this part, farm management, introduction of innovation, source of information to introduce novelty and the role of agricultural services is explored.

Data are processed through descriptive statistics aimed at illustrating the main differences between the two areas under study.

3. Results

The questionnaire was administered to 55 farms, in the province of Latina, and 40 in the province of Frosinone, and the answer were sufficiently numerous to get an idea about the differences between the two territories.

Farm structure

As we can see from table 1, farm structure is different in the two districts: in the Rural district the main productions that typify the sample are breeding (55%), wine yard (25%) and olive yard (17%), while in the agrofood district the agricultural structure is more diversified and shows a prevalence of vegetables, in open field and green-houses (more than 55%), fruit (almost 13%) and nursery (9%).

Tab 1: Farm's productive structure

production activity	WHOLE SAMPLE		RURAL DISTRICT		AGROFOOD DISTRICT	
	Number of farms	%	Number of farms	%	Number of farms	%
breeding	26	27.4	22	55.0	4	7.3
hot-housing vegetables	17	17.9	0	0.0	17	30.9
open field Vegetables	13	13.7	0	0.0	13	23.6
orchard	7	7.4	0	0.0	7	12.7
growing	5	5.3	0	0.0	5	9.1
olive-yard	12	12.6	7	17.5	5	9.1
vineyard	14	14.7	10	25.0	4	7.3
sowing	1	1.1	1	2.5	0	0.0
TOTAL	95	100.0	40		55	

The intensity of agriculture in the AFD emerges from the gross product of the farms: the distribution of farm around a mean of about 190.000 € (more of 65% is over 100.000€, while in the rural area the mean is around 64.000 €). A structural difference concerns farms' labour use: only 10% of farms in the R.D. use no family worker, whereas in the AFD, the rate of family workers is around 40%. The mean age of family components,

between the two districts is almost the same, but their schooling level is different. In the RD the education level is higher; the percent of family components holding a high school diploma is significantly higher (42% in RD – 16% in AFD). This could give more chances to the farmers in this area to gain access to SSA.

Tab. 2: Household and labour force

Workers	WHOLE SAMPLE		RURAL DISTRICT		AGROFOOD DISTRICT	
	Number of farms	%	Number of farms	%	Number of farms	%
Average n° /farm			0.15		1.5	
Type of farming				%		%
- direct	68	71.6	36	90	32	58
- with hired labour	27	28.4	4	10	23	42
	95	100.0	40		55	
Age range				%		%
<30	9	9.5	5	12.5	4	7.3
31-40	29	30.5	11	27.5	18	32.7
41-50	24	25.3	10	25.0	14	25.5
51-60	23	24.2	9	22.5	14	25.5
>60	10	10.5	5	12.5	5	9.1
Age (average)			46		45	
scholarship				%		%
no	0	0.0	0	0	0	0
primary	14	14.7	5	12.5	9	16
secondary	55	57.9	18	45	37	67
high	26	27.4	17	42.5	9	16
	0	0.0	0	0	0	0
	95	100	40		55	

Producers and extension services

To measure farmers' access to extension services (ES) an index denominated “**contacts**” has been created, that is a weighted index to calculate all the occasions that the farmer has had to gather (obtain) information from the services. It includes face to face meetings, use of specialised press, conventions, workshops, courses, use of internet and other media.

The data shows, as a main item, that in the AFD there are more contact occasions (almost 50% has 20 or more contacts with extension services, while in RD only 2.5% has more then 6 contacts), so that almost 65% of RD's farmers have no contacts with ES.

Another relevant data is the correlation between this index and the structural features of farms.

It is clear that there is a direct high correlation between contacts and gross product or number of workers employed in the farms, but we have to note that in the RD this correlation becomes inverse, and this could be a problem for the future progress of the better structured farms of this area.

Another fact is the low inverse correlation with age of head of farm (and even with the average of family age). The small correlation is not surprising if we consider the lost of contact of the young farmer with the ES, and the absence of education in using the service. In fact in the last years institutions haven't given too much importance to this sector of intervention in agriculture.

This inverse correlation is higher in the AFD (-0.27 in AFD and -0.12 in RD) maybe because of the higher dimension of farms.

Tab.3: “Contacts” with Extension Services

“Contacts” Range	WHOLE SAMPLE		RURAL DISTRICT		AGROFOOD DISTRICT	
	Number of farms	%	Number of farms	%	Number of farms	%
0	29	30.5	26	65	3	5
1 – 10	11	11.6	6	15	5	9
11 – 20	27	28.4	7	17.5	20	36
21 – 30	16	16.8	0	0	16	29
31 – 40	6	6.3	0	0	6	11
>40	6	6.3	1	2.5	5	9
	95	100			55	
mean	14.7		4.9		21.8	
Correlation						
“contacts”/ mean family age	-0.20		-0.17		-0.25	
“contacts”/ mean householder age	-0.19		-0.12		-0.27	
“contacts”/ gross product	0.37		-0.11		0.30	

A further index used has been the **number of modification** that in the last 10 years has been introduced in the farm (table 4). We have considered different kind of modification in cultivation, in breeding and in organization processes. The number of modification adopted is higher in the farm of AFD, this is due mainly to the kind of intensive production realised in this area. But, looking at the correlation with age of farmers we observe that in this area the modification introduced have a low inverse relation as normal too.

On the other side, in RD’s farms there is, at least, a positive low correlation but without a big significance.

Tab. 4: “Modification adopted ”

Modification Range	WHOLE SAMPLE		RURAL DISTRICT		AGROFOOD DISTRICT	
	TOT	%	TOT	%	TOT	%
0	17	17.9	15	37.5	2	4
1 – 5	53	55.8	22	55	31	56
6 – 10	23	24.2	3	7.5	20	36
>10	2	2.1	0	0	2	4
	95	100.0				
average	3.9		2.0		5.2	
Correlations						
“modifications”/ mean family age	-0.08		0.02		-0.12	
“modifications”/ mean householder age	-0.10		0.06		-0.20	
“modifications”/ gross product	0.56		0.08		0.54	
“modifications”/ type of farming			0.36		0.48	
“modifications”/ “contacts”	0.49		0.16		0.37	

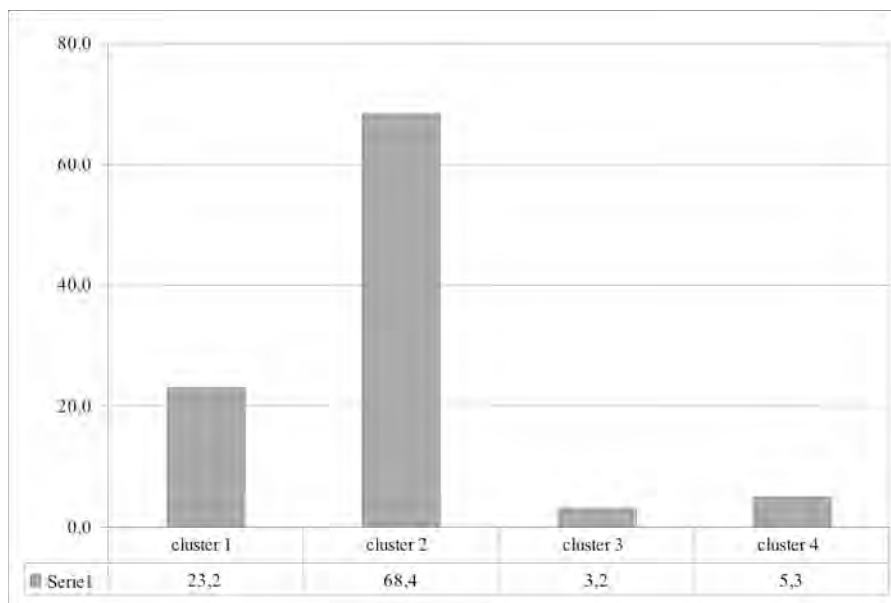
A relatively strong relation can be observed between contacts and modification adopted (0.49) especially in AFD (0.36). As a result of contact with ES, we can also observe high correlations with safety of workers and perception of pollution's risk for the environment and for the agricultural farms (table 5).

Correlation analysis			
ES/"contacts"	0.45	0.32	0.23
Workers protection/"contacts"	0.55	0.11	0.41
Perceived environm. pollution/"contacts"	0.21	0.31	0.23
Perceived farm pollution /"contacts"	0.53	0.21	0.49

Cluster analysis

To synthesise our information and to obtain a classification of farms, a cluster analysis has been conducted¹. As a result, 4 groups of homogeneous farms have been identified. Figure 2 shows the share of each cluster: the predominance of the second cluster emerges, followed by the first class. Third and fourth clusters are of minor importance.

Fig.1 – Cluster analysis



The first class is characterised by an intense consume of agricultural services and is particularly developed in the district of Latina. The farms of this cluster presents high levels of contact and high number of organisational adjustments: then, the cluster could be labelled as farms with high propensity to consume agricultural services and absorb 22% of the total.

The second class describe the situation of the rural district and is characterised by a non-consumption of agricultural services. The cluster can be labelled as farms with a low propensity to consume services. Third and

¹ The variables considered for the cluster are relative to the consume of extension services, to the farms structure and to the geographical localisation of the farms.

fourth cluster are characterised by the cultivation, the first is typical of farms with breeding, the last one by cultivation. Breeding activity is characterised by high levels of assistance, as the cultivation activity; besides the farms with cultivation show high intensity of contacts.

4. Conclusions

The survey we have described has shown as a first result the many differences existing between the two investigated areas in terms of consumption of extension services. These differences have an impact on the real demand of extension that we can measure in terms of contacts with the services that have, as a natural consequences, a repercussion on the modification adopted in the farms, and on the services that the farms consume. In addition the “no” use of extension services could be due to an informative gap, that have a strong influence on the adoption in the farm of worker’s safety measures, on the perception of pollution’s risk in the environment and on the same farm. Through the analysis of these informative gaps, we could try to estimate the latent demand of extension services by a further elaboration of the information collected in this survey. From this, the total absence in both districts of public extension service systems emerges: in fact, the agency active on the agricultural territory is private (mainly private consultants or associations of farmers). If this situation can be efficient in the Agro-food district, where the farms are stronger and more structured, it is not justified in the rural district, where a public intervention will be useful. Besides, the reduced consumption of services in the RD is not coherent with recent documents of rural development policy which give emphasis on the role of agricultural services in rural areas. Anyway, as underlined in a recent convention of the Italian Society of agricultural economy on the extension services in agriculture (Zezza, 2003), even if there is a growth of extension services activity, the public intervention have a fundamental rule linked to the “*market failure*” generated from both the increasing relevance of multifunctional agriculture and the asymmetrical distribution of benefit linked to diffusion of extension services. A small number of farms expresses a virtuous behaviour in relation to education and extension: the high intensity in consumption of agricultural services gives a lot of advantages in terms of efficiency in management, qualification of products and economic performances: this result has been found above all in areas characterised by intensive agriculture, while, in rural areas, conditions of information asymmetry and difficulty of access to services persist. That proposes again what has been repeatedly underlined in the literature: who knows less, less asks to know (Haug, 1999); Benvenuti (2000) terms this situation as the “paradox of the result”: how long will last the paradox?

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EMPOWERING ORGANIZATIONS: REVEALING THEIR PERCEPTIONS TO ADAPT SUPPORT PROGRAMS

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Keywords: Organizations, perceptions, liberalization, learning.

1. Introduction

The implementation of economical liberalization policies led to important changes in the agricultural sector and challenged the survival of many agricultural producers. In this situation, both empirical and theoretical literature insist on the role producers' organizations can play to guarantee producers' access to markets. As a result, these organizations are receiving support from both private and public actors. However, producers' organizations do not all have the same needs facing liberalization, particularly because they do not share the same perceptions of liberalization's stakes. We argue that it would be important to adapt support programs to the perceptions of the organizations. The key issue of this paper is to answer the following question: Does knowing the perceptions of organizations enable to better support them? To answer this question, we rely on an empirical study carried out in Costa Rica that focus on producers' organizations (Maître D'Hôtel 2007). In section 1, we present the costarician context, and more particularly the way public programs aimed at strengthening producers' organizations have evolved in the last decades. Section 2 is a literature review on the way support programs, based on learning processes, have been conceived. Section 3 presents the methodology we used to characterize organizations' perceptions. Section 4 delivers the results of the empirical study led in terms of organizations' perceptions. Section 5 provides insights, on the basis of these results, on the way to adapt support programs to organization's perceptions.

2. Context

In Costa Rica, the liberalization process has been implemented quite rapidly. Initiated in 1984 with the approval of the first structural adjustment plan, liberalization was reinforced in 1994 with the adhesion of Costa Rica to the World Trade Organization. Since the approval of the "*Agricultura de Cambio*" program in 1986, the Costarician State tends to withdraw from market regulation and to reduce markets' barriers. This period of liberalization corresponds to a change in the way public programs aimed at empowering producers' organizations have been conceived (Rodriguez and Maître D'Hôtel 2006). During the 1970 and 1980 decades, the Costarician Ministry of Agriculture intervened on organizations, mainly through technical and financial programs.

The objective of these programs was clearly an agricultural modernization (green revolution period) with positive results as in the case of coffee or dairy. Services supplied focused on technology transfer, and were basically made of research, technical assistance and credit. In most of the cases, these services were following a top-down logic.

Since the 1990 decade, public programs aimed at empowering producers' organizations have evolved a lot.

- First, in a context of further trade liberalization, they tend to foster subsectors oriented towards newly formed export markets, as for example pineapple. The public institutions' assistance is aiming at improving the competitiveness of the farmers and strengthening the managerial skills of organizations to deal with marketing issues. They disregard subsectors in relation with domestic markets (for example

bean) and doesn't assist organizations strategies oriented to larger objectives (community development, support to family agriculture, etc.).

- Second, they still focus on technology transfer, but they are progressively becoming more participatory to adapt to the needs of farmers.
- Third, they evolve from assistance at farm level towards exclusive support to organizations providing credit for investments and technical assistance. They put in place capacity building actions aimed at the identification of critical gaps in organizations' functioning and, at the end, the construction of strategic plans by producers.

3. Literature review

In the past 50 years, several types of systems have emerged to encourage learning of rural actors. We will distinguish two main types (Coudel, 2009).

- The first systems to be structured are the "extension systems" developed during the green revolution, mainly focused on knowledge and technology transfer. Although they adapted progressively to become less top-down, more participatory, such systems focusing mainly on knowledge transfer are still largely advocated by national and international institutions as they offer quite operational methods (Black 2000).
- Then, in the 1970s-1980s, developed as an alternative by NGOs, new systems emerged locally, generally focusing on local community development, encouraging exchange and innovation through networks. These systems were reinforced during the 1990s-2000 by national and international institutions, with "integrated community development" or "capacity building" programs. These approaches, that tend to enable different actors to develop new ways of thinking about development and decide what future they want for themselves have been qualified as social learning (Roling and Magemakers 1998). This evolution in learning systems can be understood through the framework of action-learning theory, that postulates that we learn through action, by correcting our errors, in a continual retroaction process (Argyris and Schon 1996).
- Learning in the common sense is qualified as single-loop learning: it occurs when new information is acquired and transformed individually or within a group with the aim of improving efficiency, for example by improving existing routines. This conception is central in extension systems.
- Another type of learning may be necessary in some blocked situations, within a double-loop learning process: through a group process, individuals must gain a new perception of issues and problems, leading to a new way of solving them, and to the emergence of new values within the group. This is qualified as organizational learning¹, and is quite present in community learning systems.

These two types of learning processes occur simultaneously, in interaction, but depending on the situation and the priorities, one process will take the front. Within more recent learning systems, which put forward values and the importance of developing learning frameworks, instead of knowledge and technologies, the perception of the actors involved emerges as an important aspect, especially for adult learning (Knowles 1990). An adult has a psychological need to be recognized as self-directing. It is necessary to recognize his past experience and negotiate with him an education project to which he adheres and in which he sees an interest for his life (he will be all the more interested, in the contrary case, he will feel a tension which will lead him to resist). The trainer

¹ In recent years, several authors suggest that there is also a "triple-loop" process, that emerge from unstable collectives with heterogeneous actors, and consist as challenging societal rules, innovating at a societal level, and introducing new frameworks to guide action. This triple-loop implies that actors are aware of the importance of developing common learning processes, and consciously reflect upon this learning.

must encourage the learning process through specific methods. Therefore, to conceive an adequate training, it is important to build from the perceptions of the actors involved....but how is it possible to reveal these perceptions?

4. Method

To reveal organizations' perceptions, we lead a statistical analysis of textual data. In Costa Rica, we met the representatives of twelve organizations, involved in different agricultural subsectors (coffee, dairy, bean, pineapple). We interviewed them on the way they were perceiving the economical liberalization. Their answers have been fully re-transcribed before being analysed with the ALCESTE² lexicometric software.

The lexicometric approach, developed in the 1980s, relies on the hypothesis that the words used by actors reveal subjacent mental representations of the world (Reinert, 1986). The approach enables both (i) a quantitative definition of a lexical specificity, based on occurrence calculations and (ii) the production of qualitative structural information, based on cooccurrence calculations. The ALCESTE software relies on the Khi-square statistics and on hierarchical cluster analysis. It leads to the establishment of lexicometric classes. These classes are defined

- By representative words : occurrence calculations, the quantitative test for a word to be representative of a class is a Khi-square statistics³
- By the way words are structurally associated : co-occurrence calculations, words associations are mapped in hierarchical clusters.

The interpretation of these classes permits to characterize the prevailing mental perceptions. Even though the existence of significantly different classes and related words is purely statistic, their interpretation is the delicate part of the work, and has to be confronted to a deep knowledge on actors.

5. Results

The lexicometric analysis, applied to the discourses of representatives, identifies four different lexicometric classes, presented in Table 1 below. The figures into brackets correspond to the associated chi-square: the higher the chi-square, the higher the importance of the representative word in the constitution of the class. On the basis of the interpretation of each one of these classes, we distinguish three types of perceptions (see below):

- Type A, liberalization is perceived as an opportunity
- Type B, liberalization is perceived as a reality we have to face
- Type C, liberalization is perceived as a constraint

The fact that none of the subsector variables is located in the class 1 indicates that this class corresponds to a "common field of perception": globally, actors refer in their discourses to public policies, that are addressed through measures (*policies, tariff, free trade agreement*) and actions (*negotiate, defend*).

² From French, meaning "Analysis of Co-occurring Lexemes in Simple Utterances of a Written Text"

³ This Khi-square statistics is the probability to consider a word as representative of a class when it is not representative of this class (its representation in the texts of this class is not meaningful).

Table 1 : The lexicometric classes obtained by the textual analysis

	Representative words	Subsectors variables
Class 1	<i>Free (90), Negotiate (69), Trade (69), Tariff (59), Policies (35), Defend (12)</i>	
Class 2	<i>Export (22), Pack (16), Try (14), Pay (13), Cost (13), Contract (13), Agreement (9)</i>	Pineapple (128)
Class 3	<i>Develop (27), Can (16), Say (16), Transform (16), Think (7)</i>	Dairy (66), Coffee (27)
Class 4	<i>State (18), Withdraw (17), Help (9), Fight (9), Decide (8)</i>	Bean sector (144)

The three other classes can be interpreted as three different types of perceptions.

- In class 2, liberalization seems fully accepted by organizations (Type A). Attention is concentrated on market coordination, that is addressed through actions (export, pack, try, pay) and through measures (agreement, contract, cost).
- In class 3, liberalization is integrated by organizations as a reality, and even if they do not fully adhere to it, they can react to it directly (Type B). Organizations focus on the importance of organizations' play, by their role in the development of sectors (can, develop) and by the actions they lead (say, transform, think).
- In class 4, liberalization is perceived by organizations as a constraint, and is somehow rejected (Type C, utopist rejection). Organizations strongly refer to State coordination, and more exactly to State withdrawal, that is denounced and responsible for economical difficulties (fight, problems).

6. Discussion

These results suggest that programs aimed at empowering organizations have to be devised differently depending on organization's perceptions.

- In the case of organizations of Type A, support programs based on technical assistance directly fit organizations' needs. Because organizations fully perceive liberalization's stakes, these programs can directly address production, transformation, marketing and managerial issues. However, to better perform, they have to rely on the recognition and exchange of experiences (embeddedness of the acquired knowledge in experiences). They rely on single loop learning⁴.
- At the opposite, in the case of organizations of Type C, there is a need to work on values before working on technical capacities (double loop learning). Support programs have to concentrate first on the definition of organizations' strategical objectives. This process of definition is quite complex, it implies the rising up of (i) a common perception of organization's environment by members and (ii) a common perception of what the organization should and can by members. Obtaining this collective appropriation requires to foster auto-analysis capacities, that goes through the recognition of past experiences of both organizations' members and other organizations (Faure et al 2007).

⁴ In cases there is a need to better define organizations' strategical objectives, a collective work on values could be necessary (double loop learning)

In between, in the case of organizations of Type B, support programs may combine single loop learning processes (as in the case of Type A organizations, focusing on technical capacities) and double loop learning processes (as in the case of Type C organizations, focusing on values).

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AGRICULTURAL ADVISORY SERVICES AND EXTENSION IN CENTRAL ASIA - THE EXAMPLE OF TAJIKISTAN

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Keywords: Tajikistan, Central Asia, extension, transition, local governance.

1. Introduction

Tajikistan has the lowest per capita gross domestic products (GDP) among the 15 successor states of the Soviet Union. Accounting for 23% of the GDP, the agriculture sector is a major pillar of the economy. Agriculture has also an enormous social significance. About 67% of the population depends on agriculture for their livelihoods, and 73% of the total population lives in rural areas. Although Tajikistan has experienced steady economic growth since 1997, nearly two-thirds of the population continues to live in poverty.

Tajikistan is a landlocked nation in Central Asia, which is covered by high mountain ranges; more than fifty percent of the country is over 3,000 meters above sea level. Only 28% of Tajikistan's territory is agricultural land. Arable agriculture in Tajikistan relies heavily on irrigation. Of the total area of agricultural land (4.1 million hectares in 2006), the irrigated area in 2006 is 724,000 hectares. About 30% of this irrigated cultivable land, which corresponds almost to the whole area suitable, is under cotton

The transition from Soviet command economy to a market-oriented economy stagnated in the middle of the process during late 90's, leading to a mixture of both, somewhat similar to the economic development in the Russian Federation (i.e. Command capitalism). However, the process produced a great number of land users with heterogeneous access to land. Great deals of these new farmers possess only limited knowledge about farming (Wall 2006, Eshchanov et al. 2007). Nevertheless, considering economic and social means of the Tajik agricultural sector and taking into account the threat of its natural resources by Climate Change and industrial overuse, agricultural extension and information exchange (i.e. knowledge management) are of high importance.

The Tajik situation is regarded symptomatic for other Central Asian Republics. Much of today's social and political culture derives from the common historical experience of the Soviet Union. By comparison, Kyrgyzstan is most advanced in distributing access to resources, while Uzbekistan, Turkmenistan and Tajikistan – due to their heavily cotton-related agriculture – maintain strong control of agricultural production. This paper aims to understand current conditions of agriculture advisory work in Central Asia from a sociologic and political perspective. Many of the obstacles to advisory services apply for all four states. An in-depth analysis of currently ongoing extension activities is omitted here. Instead, conditions of possibility for advisory services will be examined.

2. The cotton-power nexus

The high share of agriculture in Tajik GDP is due to the revenues from cotton. Foreign sale numbers explain why the legacy of the soviet collective farming system still prevails. Cotton generates income in form of taxes to the state and profits to small elite circles that are involved in the processing and the trade. In order to secure this source of income, state officials and elites are utterly fixated on this cash cropping. The livelihood of farmers in cotton producing areas is actually worse than the living of those in non-cotton areas (Wiegmann 2009, ICG 2009). Farmers and farm enterprises must sell the cotton crop to predetermined companies at prices below the international market.

"The exploitative nature of cotton economics makes the repressive political system of the [Central Asian] states almost inevitable. Since the state and the cotton elites are unwilling to pay farmers a fair price, the system can only continue through the use of coercion. States that depend on the present structure of the cotton monoculture must retain an authoritarian political system, in which the rights of individuals are suppressed, theoretically in favour of the collective good, but in practice in favour of narrow ruling elites." (ICG 2005)

As a matter of fact, the monoculture cultivation of cotton has unthrifty impacts on food security, environment and the general economic development of Tajikistan. At the same time it displaces farmers of their right to carry out a self determined agriculture and leading in turn to underperformance and stagnation of agriculture production (Bakazoda 1999, Atta 2008).

3. Farm structure and labour

Virtual the entire rural population practises subsistence farming to sustain their livelihood. Apart from least favoured areas for agriculture, privatisation has taken place only marginally in Tajikistan. Especially in cotton growing areas, land cultivation on a private basis is marginal (Bliss 2005, Herbers 2006).

Kolkhoz or sovkhos successor enterprises have most farmland available. The bulk of the rural population is employed on these farms. They basically continue to produce in the kolkhoz manner, however on a lower level as input and machinery is lacking. According to the official policy of the Tajik Government, the land resources of these enterprises are to be privatized. In fact, most of these big farms are under control of local elites, who pursue a very reluctant privatization strategy. For the time being, these farms maintained the hitherto, i.e. Soviet, business concept. Their future development is barely predictable.

Almost all farmers cultivate cotton as wage worker on the kolkhoz or sovhoz successor farms, but under much worse conditions. From farmer's perspective, nothing much changed with regard to labour conditions. Beside the income as wage worker, subsistence agriculture is vital on private household plots and leasehold plots. The majority of clients of extension services in Central Asia are very small farmers, most of whom will never manage commercially competitive farms. They dispose of small land plots, often not more than one or two hectares. The annual available farmland for a family household allows a very limited production, which alone does not secure the livelihood.

Rural people have only minimal opportunities to generate income through market activities. This is mainly due to the high domestic importance of produce, so that only a small surplus can be sold. Additionally high transaction costs prevent the market access. Agriculture commercialisation in general is limited to local and regional markets, with weak commodity markets. Therefore market access may not be the primary aim of large parts of the rural population. It is also very common that one or more family members are hired out in labour migration. Until the begin of the global economic and financial crisis, nearly half of the Tajik labour force – an estimated one million people - worked abroad, primarily in the Russian Federation, supporting families through remittances.

The number of private farmers (Tajik: Dekhon farmers) is still small, especially in cotton producing areas. This group could become the motor of commercial farming, as they possess at an average a few hectares of farmland.

Problematic is the political and economic periphery that causes dependencies. Dekhon farmers are impelled to work in close symbiosis with the kolkhoz and sovkhos successor enterprises in order to accomplish basic forms of industrialized farming or to ensure proper access to irrigation and other input. Apart from that, private farmers deal with interferences by state administration, local governance or farmers associations, especially with regard to cropping decisions (Porteous 2005, Wall 2006, Robinson et al. 2008). Consequently, most Dekhon farmers cultivate cotton on the bigger part of their estate.

4. Extension

Agricultural extension and research is highly welcomed by Central Asian agronomists and farmers (CACAARI 2009, Wason 2002). However, the current situation of agriculture research and extension in Central Asia is weak, as previous institutions and knowledge management structures deteriorated since the end of the Soviet Union (Morgounov et al. 2001). Agricultural expert knowledge that was locally integrated in the collective farms, was partly lost or became outdated (Wall 2006). However, the remains of this knowledge form the basis of current crop growing, especially in the cotton industry.

The current situation in agriculture in Central Asia requires intensive development of extension services. Despite regional projects lead by international NGO were and are being implemented, national capacities to enhance learning and information sharing among farmers are very weak. Although agriculture in Gorno-Badakhshan Autonomous Province (GBAO) of Tajikistan profited much from regional advisory service (Bliss 2006), the results of extension efforts in the Region of Republican Subordination (RRS) were minor (Wason 2002). Land plots in GBAO are very small in a mountainous terrain, while the area of the RRS is mainly producing wheat and cotton. Conditions for advisory work change soundly in these two regions. In the case of GBAO one positive indicator is the much advanced privatization. Constraints in RRS derived from governmental demand to control farmer knowledge sources, i.e. media and farmers associations, and the subsequent prohibition to apply new practises. "Extension [is] a series of embedded communicative interventions that are meant, among others, to develop and/or induce innovations which supposedly help to resolve (usually multi-actor) problematic situations." (Leeuwis et al. 2004)

Against the background of this definition, the nexus between knowledge and innovation does not go together well in the Central Asian countries. Unlike western extension systems that rely on the free choice of farmers regarding their farm practise, farming innovations in Central Asia are a delicate issue, monitored by the state, local governance institutions or even farmer associations. In many cases farmers are simply impeded to implement innovations (Wall 2006, Herbers 2006, ICG 2005, 2009).

Conditions to run agricultural advisory services vary within the different regions. Partially, central governments are not in the position to enforce nation-wide policies that guarantee farmers rights throughout the country. In return, farmers are rarely able to lobby effectively for their interests. Local governance, as processes how actors on the sub-national level are regulating and steering their affairs, tend to be absorbed and dominated by local elites or state authorities. That applies also to other collective bodies as buyer and supplier units or farmers associations. The set up of local power structures affects any extension activity. Development assistance by international organisations should be aware of this difficulty when working with local elites, in order to increase farmer potentials (Bliss 2005). Tajikistan is a good example for the phenomenon of delaying reforms in the agricultural sector.

Regional diversity of extension practise is also predetermined by the geography of Tajikistan, which makes its difficulty to communicate in general. With the end of the Soviet Union, the information flow between the regions came to halt. Currently there is no common informational space in the country.

These circumstances limit the potential of extension activities and future perspectives of the various rural actors are not yet clear. Kolkhoz and sovkhoz successor enterprises are dominated by the state or local elites, which are basically interested in the production of cotton. Despite economic and efficiency arguments, heads of the enterprises are not allowed to produce other crops than cotton. The farms are often in a deadlock position, since future strategies for these enterprises are unclear. Benefits that are earned on the farm disappear in the pockets of a few and do not return in form of investment. Efforts to receive advice or enable knowledge management are small and no importance is given to client innovation.

Private farmers are in most areas still marginal. They are in many ways dependent on the kolkhoz/ sovkhoz successor enterprises (resource allocation, input, machinery). Often private farmers have to obey other actors as

local government, farmers associations and elite figures. Especially in cotton growing areas there is a clear coercion to plant cotton. This could be an option, if cotton would be paid at real market prices. Private farmers are in need of technical and legal advice, as well as lobbying for a stronger political standing.

Extension services to the small holder subsistence farmer will stabilize their livelihoods; however chances for commercial production, i.e. horticulture produce, are rather low. Advice should lead primarily to help subsistence farmers becoming Dekhon farmers. There is also a demand of generalist advice that reflects the needs of the whole family unit, including the aim of diversifying income opportunities. Because the overall lack of resources remains, thus innovations will apply only to a small percentage of farmland.

5. Conclusion

Farmers in Central Asia are to a large extent subject of interception by the state and local elites and are not free in their decisions. Therefore, agricultural advisory work in the former Soviet Republics of Central Asia must consider not primarily technical issues that are desirable for productivity growth, but politic realities. Farmers must be able to capitalize on knowledge in form of innovations that contribute to local productivity. But, to strengthen the position of farmers, state and local governance institutions would need to increase capacities.

Advice is requested especially with regard to the access to natural resources. Legal advice and assistance must enable more farmers to become private entrepreneurs, i.e. Dekhon farmer.

Extension efforts in Central Asian countries must take into account regional differences. Due to diverse development paths after the collapse of the Soviet Union, conditions for extension and innovation vary. Agricultural extension needs to be set up via regional, decentralized systems what would enable them to deal flexible with influence by third parties. Advisory services take effect especially in non-cotton growing areas, which tend to provide greater freedom to farm.

Finally, one must take the development perspective of the different actors into account. Against the background of different regional settings and divers rural actors, it is to decide which future scenario is sustainable and pledges to yield most fruits for its clients. Again, this decision must derive from political feasibility.

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A ONE STOP SHOP FOR EXTENSION ACCOUNTABILITY PLANNING AND REPORTING

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Keywords: Technologies; accountability; extension; one stop shop.

1. Introduction

Much has been written over the years about extension work, along with the seemingly constant state of change, that most systems experience. Opportunities and difficulties seem to face all extension systems in one form or another. Funding levels, staffing, effectiveness, relevance, structure, changing policy dynamics, diversity, and delivery of services, competition, technology, and others are relevant issues that face extension work. While a discussion of these issues could occupy the conference program, This paper is going to primarily focus on the specific design and application of computer systems to enhance the effectiveness of Extension in the state of North Carolina by using the latest technologies into developing an organizational educational programming and accountability system to assure program viability and accountability.

The initial part of the system included a needs assessments that involved over 22,000 lay citizens, as well as nearly 1,000 field agents and subject matter specialists in identifying relevant issues for planning viable educational programs based on the relevant needs that were identified. It also includes program impacts reporting, along with personnel appraisal and training systems in order to assure that extension educational programs are correctly focused, implemented, and impacts reported. To better understand what a needs assessment really is, one must understand the description of a need, and then the process for accomplishing a needs assessment. Guion (2007) indicates that a need is a gap between a present situation and what a desired situation or results may be. Then, as a progression of gaining a perspective of what needs may exist, a needs assessment may be conducted. A needs assessment can be described as a formal tool that identifies gaps in what the current situation may be and what the preferred results may be. Then, placing the gaps in some type of priority order, and making decisions on which of the needs that coincide with an organization's mission require attention and allocation of resources (Witkin and Altschuld, 1995; Guion, 2007).

At that point, extension educational programs can be effectively developed that will take into account the applicable situation, the appropriate audiences, their specific needs, with program objectives and educational content of the programs established, learning strategies established and appropriate program delivery methods selected (Appendix 1), (Richardson, 1995).

2. Extension Accountability

Accountability can take various forms, but of the many issues that face extension, perhaps the greatest demand is program relevance, efficient delivery of services and having a significant impact on the lives and communities that extension serves. In order to assure a certain level of accountability, many laws that have been passed that require reporting program results, and increasing levels of demonstrated impact (US Government, 1993, 1998). Specific emphasis on program planning and reporting from the federal AREERA Act of 1998 states that... "Institutions should describe the contributions of extension staff and programs toward impacts rather than describe the programs (United States Government, 1998)."

In concert with this, most U.S. extension systems set personnel accountability standards that assures all personnel have their performance levels evaluated and assessed on a rather continuous basis, with a formal evaluation conducted each year (Edwards, personal e-mail communication, 7-27-2008).

3. Converging Technology and Accountability

With the focus of this paper on the continuing evolution of extension program planning, personnel appraisal and accountability, to include the convergence of newer technologies with management systems, we can trace the increasing usage of the internet and other vast changes in management systems as a result of computer technologies (WIUPS, 2008). From all-paper systems years ago to early models of computer generated reports, through the current-day integrated systems capabilities that new information technologies can provide, newly developed integrated planning, reporting and accountability systems in some states have been developed; but with varying success (Vergot, 2008; Donaldson, 2007; Richardson, 2007). North Carolina Cooperative Extension has developed, and is in the implementation stages of an integrated 'one stop shop system' as well. These systems, while once having only focused on the rudiments of reporting teaching contacts and narrative reports of program accomplishments, have now reached a level of capability whereby individual program plans, personnel management information and program accountability information can all be extracted from a single reporting system. Such a total planning, personnel performance appraisal component, and reporting component was designed as a part of the Integrated Reporting System of the North Carolina Cooperative Extension Service (NCCES) in 2007, and has now been included in the new One Stop Shop planning and reporting system by NCCES during the end of 2008, and fully implemented at the beginning of calendar year 2009.

4. Integrated Planning and Reporting System

Beginning in early 2005, Cooperative Extension in North Carolina began an innovative Change Management initiative in order to assure that programs are highly relevant and are effectively conducted by its personnel, and to hold personnel more accountable for their programmatic efforts. This initiative was implemented to plan and develop integrated programs that would and could unite multiple disciplines into integrated approaches to help the state's citizens solve the problems that are faced on farms, homes, communities, and the society in which they live.

Since this approach would require a means for reporting the results and impacts for these educational programs, I was appointed to chair a task force that would conceptualize and plan for an integrated internet reporting system.

The conceptual design of this system was formulated by mid 2007, and progressed toward being used as a template for proceeding further to develop it into the comprehensive One Stop Shop electronic planning and accountability system that is currently in operation.

5. One Stop Shop

The program planning process entailed the implementation of training institutes that included all field agents and subject matter specialists in the extension organization. Emphasis was placed on the concepts and practice of educational programming, needs assessment, mapping populations, program evaluation principles, and planning relevant educational programs (NCCE, 2007). Then, as stated, a statewide needs assessment was conducted in 2007, with all new objectives and educational programs planned for and implemented in 2008. Throughout this time, a One Stop Shop task force was working to organize a fully integrated and comprehensive system that allows agents to select relevant educational objectives and their planned outcomes/impacts, the primary program delivery mechanisms, marketing and evaluation plans. These components have been placed on interactive

templates whereby individually selected objectives and outcomes also show up in data entry for associated reports. Anything selected and reported on by an individual populates a new personnel appraisal system that will be used by administrators and supervisors to assess the performance levels of the agents involved. Also, the continually updated training records of the individual will be included which will allow for assessment of the competency pursuits of the field agents.

6. Conclusion

As the process of developing and implementing a One Stop Shop planning and reporting system, it became obvious that such systems can evolve into very complex entities that are likely to require significant fiscal and personnel resources, both to design and implement, as well as maintain. While statistics from across the world indicate ever increasing usage of the internet, with the inherent demands for increasing speed, capacity, features, and information retrieval, it is also being recognized that increased complexity can render systems to be discarded as too complex.

Such a situation relating to a comprehensive extension accountability system in one state did occur during 2008. It was estimated that a minimum of \$1 million was expended in the design and implementation of that state's system, and due to its complexity, many of the expected users and related administrators avoided using the system, thereby rendering it of little organizational value, and was described by an administrator as "dead and buried"(Vergot, 2008).

While the development process for this OSS system has been hugely time consuming and complex, the initial usage and accessibility of information is indicating that this system is not too complex or time consuming for the users and administrators to make full use of the plans and reports that can be easily observed or extracted as needed. The intent is for the needed technical and other human resources to be applied to this OSS program and its operations whereby it continues to demonstrate its capability to enhance relevance in program planning, personnel assessment and impacts produced. Therefore, the intent for the North Carolina Cooperative Extension One Stop Shop system is to assure that it is used to its fullest extent and is relevant to individual and organizational requirements in a sustainable manner.

7. Implications

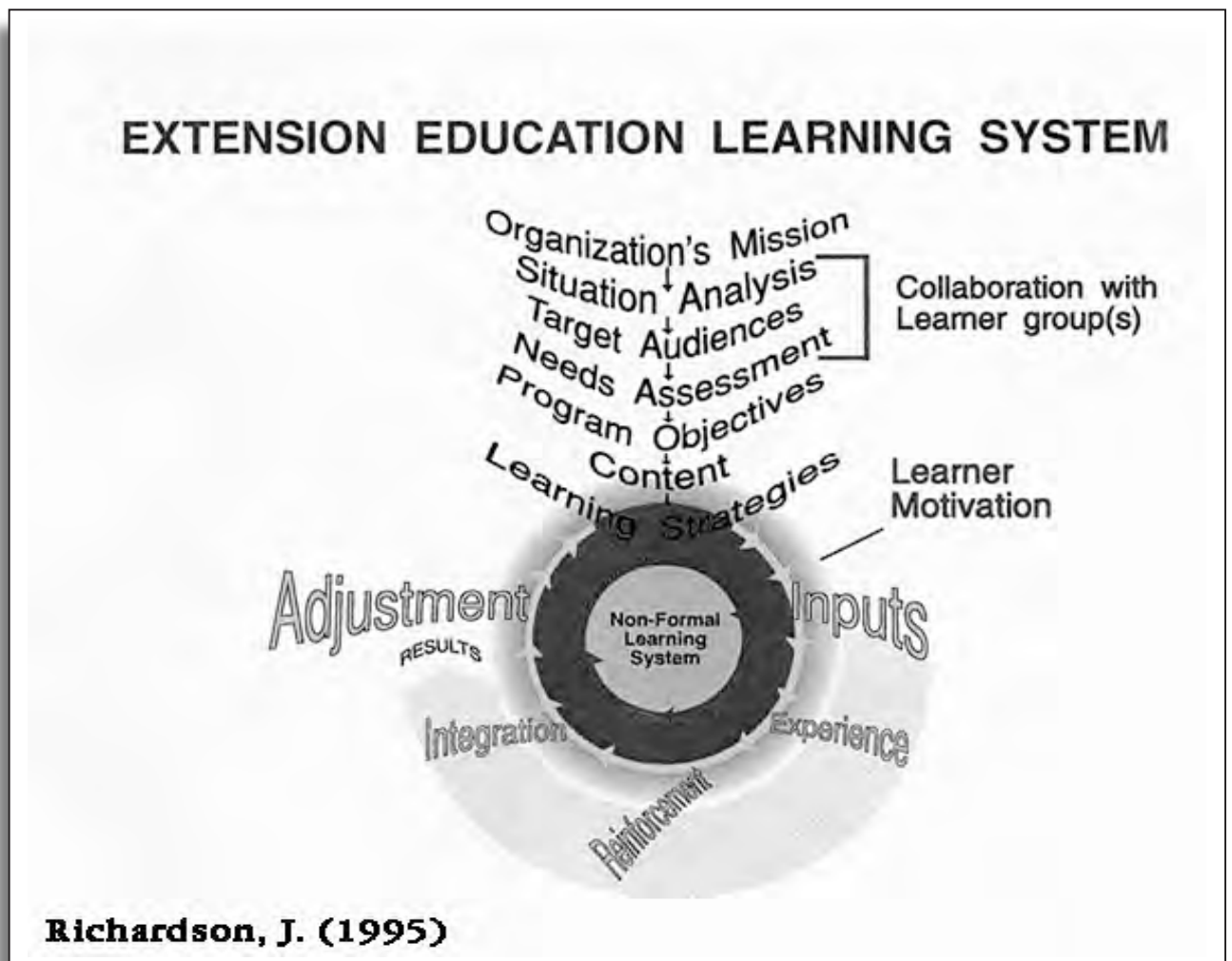
While this paper has focused primarily on extension functions in North Carolina and its efforts to serve the population of over 9 million people, it must be kept in mind that in educational systems, as in many other systems, theoretical concepts and intellectual initiatives can easily translate into unrealistic assumptions that may look good in plans but may not work when actually implemented. Such reality must be kept in mind as creative and innovative systems are developed to enhance programs and their accountability for extension regardless of the extension system or its components in all parts of the world. Planning and implementing quality extension programs can be enhanced by integrating technological advancements and capabilities into planning and management systems, but the ever-present reality of finite fiscal and human resources as well as access to the technologies employed must be key considerations for successful and sustainable systems regardless of where they are located. Indeed, the fiscal crisis of 2009 is greatly reducing such finite resources, and personnel attrition places a potential shadow over the glowing potential for an on-going OSS system that will be sustainable far into the future.

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Appendix 1



Appendix 2. One Stop Shop

Extension Reporting System						
Main Menu						
Contact Information [icon] [icon] [icon]	Outcomes and Impact [icon] [icon] [icon]	Success Story [icon] [icon] [icon]	Civil Rights AAR10 [icon] [icon] [icon]	Civil Rights AAR11/12 [icon] [icon] [icon]	Civil Rights AAR13 [icon] [icon] [icon]	ALL RECORDS Show
Non-Degree Credit [icon] [icon]	Designated Grants [icon] [icon]	Certification program [icon] [icon] [icon]	Mass Media In Development	Individual Report 2000-2008 In Development	Statewide Report 2003-2008 2000-2002	ALL RECORDS Hide

THE MARKET-LINK IMPERATIVE: REFOCUSING PUBLIC SECTOR EXTENSION

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Keywords: Agricultural extension, market access, contract farming, producer cooperatives, post-secondary agricultural education and training.

1. Rationale for Extension Reform

Two imperatives will define agricultural extension's purpose in the future. Neither is entirely new; what is new is their urgency and degree of priority for extension. They are (1) the knowledge imperative, which is associated with globalization and efforts to promote national innovation systems (World Bank, 2006), and (2) the market-link imperative, which calls for changing the focus and role of extension from food security to increasing farm income and rural employment (Swanson, 2006a, 2007).

This paper examines the market-link imperative, and the two key market-driven strategies that exist for opening the pathway to smallholder farmers who seek to become involved in high-value agricultural production. According to International Food Policy Research Institute (IFPRI) research contributors Delgado, *et al.* (2001, p. 2) and the IFPRI Director General, von Braun (2004, p. 14), these two strategies comprise contract-farming schemes and producer marketing cooperatives.

2. Key Market-directed Strategies

Contract Farming

Contract farming schemes involve smallholder connections to one of a variety of business entities, such as corporate buyers, commercial companies and estates, supermarkets and processors, all of whom may be potentially helpful in overcoming smallholder asset constraints and providing technical assistance. Contract farming offers numerous opportunities for smallholders. It gives access to a reliable market, provides guaranteed and fixed pricing structures, and most importantly provides access to credit, inputs and production services.

Marketing Cooperatives

Producer marketing cooperatives also constitute a key strategy for farmers to link to markets, either by farmers becoming members of or else by establishing this type of organization. The U.S. Overseas Cooperative Development Council suggests that cooperatives in general are strategically important pathways to economic, democratic and social development in the global economy (OCDC, 2007).

Alternative strategies

Strategies other than contract farming and marketing cooperative organization contribute to increasing farmers' incomes and in some cases link farmers to markets although their main purpose may not necessarily be to create market linkage. These alternatives are less definite and include farmer-to-farmer schemes and leadership by leading or prominent farmers.

Too often overlooked is the role of women in marketing and in the development of marketing organizations. Women in Jamaica and previously in Ghana are primary marketing agents. Extension practitioners and professionals in general need to be particularly aware of women's contributions and potential in developing marketing organizations.

2.1 Contract Farming: Advantages and Disadvantages

In contract-farming schemes, farmers become organized under the aegis of a private company. Carried out according to an agreement between a buyer and farmers, contract farming establishes conditions for the production and marketing of a farm product or products.

According to the World Development Report 2008, "Contract farming is a system where a private sector firm provides farmers with inputs – such as credit, fertilizer and seed – in exchange for exclusive purchasing rights for the resulting crop" (p.128). However, this definition ignores two quite different contract-farming arrangements: marketing contracts and production contracts.

There is a tendency away from 'marketing contracts,' whereby farmers control the production of products, and increasingly toward 'production contracts' where companies provide the inputs, processing methods, and output standards, and the farmer becomes a manager of the production system (Rivera, 2008, p. 28). Agricultural producers in livestock production (poultry and hog industries), are especially confronted with changing relationships in their contractual relations with companies and their role in farming – whether continuation as independent producers or as company-directed field managers.

2.2 Cooperatives: Advantages and Disadvantages

Marketing cooperatives are distinct from other producer organizations, which include (a) fertilizer supply associations and processing plants, (b) local village-level groups, (c) unions and syndicates, as well as (d) advocacy cooperatives ((Rondot and Collion, 2000). Other producer organizations, as well as marketing cooperatives, often educate farmers about markets. Nonetheless, marketing cooperatives provide more inclusive guidance to their members regarding development of commodities for markets to meet market demand. In general, marketing cooperatives, as with other agricultural businesses, are a major tool in local economic development and are being used in innovative ways to serve rural constituents (Merrett and Walzer, 2001).

Institutional Innovation

Cooperatives, to remain competitive, are increasingly forming alliances with other cooperatives or related businesses (Gall and Schroder, 2005, p.3). Extension can play a strategic role in helping farmers create producer groups but also to negotiate directly with large-scale traders, exporter or value-added processors.

3. The Role of Extension in Fostering Market-driven Strategies

The role of extension in fostering market-driven strategies includes assistance to farmers with market information, business training, and organizational development, including:

- Provide market information: supply/demand, prices.
- Provide group-organization knowledge, attitudes and skills to farmers with an eye to helping them see benefits of organizing.

- Help farmers create producer groups and negotiate directly with large-scale traders, exporter or value-added processors.
- Help smallholder farmers to develop key market-driven strategies for income generation.
- Foster development of business by farmers and promote business entrepreneurs.

To accomplish these tasks, related institutions and human capacity development will be required. Post-secondary education and training institutions will need to reform their curricula to prepare extension administrators and field agents for dealing with the advancement of an extension market-oriented.

4. Institutional Change and Expanded Educational Networks

Public sector extension systems in less developed countries need to shift some efforts from a production-orientation to a market orientation. For this to happen, two challenges must be confronted: (1) institutional development through leadership that reorganizes its management to promote farmers' preparation to engage in market-driven organizations, and (2) human resource management and development programs that operate in an expanded educational network.

The institutional challenge involves reorganizing extension to create strategic plans and special units with the purpose of developing information on market-driven strategies, in particular for smallholder farmers. Market analyses and market signals are important to priority setting for extension services, to help ensure that producers find profitable market opportunities for the products with which extension services are working.

Productivity and production remain key areas for extension support. But beyond farm gate production, extension needs to promote not only (1) production technologies—for information for decisions on: choice of crop or product to meet market requirements, timing production to market needs, and reducing production costs, but also (2) post-harvest technologies—for information on storage, processing and post-harvest handling practices; and (3) marketing extension services—for help in linking producers to markets, organizing new marketing channels, improving marketing efficiencies, group formation and cooperative action in product marketing, and accessing government and private market services through production contracts, production credit or inputs, and specialized advisory services (Narayanan, 1991). Also, as already noted (4) market information systems (MIS) are needed to provide information on prices, market locations and knowledge of alternative markets, grades and standards, and quality requirements of markets.

A market-orientation for agriculture has important implications for extension that implies a refocusing of these services. Market-demand is a crucial determinant for technology adoption, which must enable production to respond to market signals. An exclusive focus on production technology, ignoring market demand and farm budgets, has been the fatal weakness of many past extension programs (Swanson, 2006b p.4).

A second major challenge confronting extension in less developed countries is to design human resource development training programs that include connection with a range of educational activities directed toward linking farmers to markets (Rivera and Alex, 2008). To meet this challenge, more of the same is not enough. An agricultural workforce education network is required; one that connects formal education, inservice training, and nonformal outreach, as well as one that recognizes knowledge as the product of indigenous and modern experiments and learning.

An expanded workforce education network would include two distinct systems at the post-secondary agricultural education and training level. The use of the term 'knowledge triangle' is a misnomer. There are in fact *four*

institutional pillars, or a nucleus of four interconnected/overlapping parts that constitute the knowledge institutions.

They include agricultural research, extension, and also two post-secondary agricultural education systems: higher and technical. The latter two systems, or sub-systems in this agricultural knowledge nucleus, indicate in our view that donors, lenders and other investors in the development of the knowledge institutions need to consider separate policy, purpose and intended/expected results of these two formal education institutions offered at the post-secondary level. However, it needs to be remembered that extension is part of a larger knowledge system and that parallel developments in the post-secondary agricultural education and training sub-systems are required if a market-oriented strategy is to be fully successful.

5. Conclusion

Change today is global and rapid. A new paradigm has emerged towards a market-driven, agribusiness orientation, stressing comparative advantage in a highly competitive global market (Rivera *et al*, 2001, p.4). This globalization and market orientation is placing new pressures on governments and their people to produce more, for both domestic consumption and trade. Contract farming schemes and producer cooperatives are important avenues toward meeting these demands in the context of current development needs, and extension can play a significant role of fostering farmer connections to these organizations and, further, to helping farmers develop fledgling businesses and cooperatives. To ensure successful extension efforts, especially in the preparation of extension administrators and field agents in advancing a market orientation, parallel developments are needed also in the post-secondary agricultural and training sub-systems.

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RURAL AND AGRICULTURAL EXTENSION DEVELOPMENT THROUGH AGRICULTURAL SCIENCES & VETERINARY MEDICINE UNIVERSITIES IN ROMANIA

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Keywords: Romania, agricultural & veterinary universities, extension, collaborations.

1. Introduction

As Romania strives to develop the rural and agricultural economy to sustain national strength and active participation in the European Union, the infrastructure and organization of agricultural education in the country continues to be a challenge. The regional agricultural sciences and veterinary medicine universities (USAVMs) realize that directly serving their district of the country is vital to their credible reputation as centers of excellence in agricultural and animal health information and technologies. The leadership of three regional agricultural sciences and veterinary medicine universities have committed resources to establishing connections with local agricultural communities. National and county Romanian government leaders have established extension education as priorities needed to advance rural and agricultural economic efficiencies. It is the intent of this paper to discuss the emerging role of the USAVMs in Iasi, Cluj-Napoca, and in Timisoara, Romania.

2. Background

Until 1989 Romanian rural and agricultural development was centrally coordinated and little education was directly accessible to the leaders and people in rural agricultural villages and towns of Romania. Many families were given access to their ancestors' agricultural land without any economic, agricultural, and educational resources. The universities have been re-structured since 1989 but has a long-standing international reputation for this outstanding research and didactic programs. These agricultural sciences and veterinary medicine universities are directly related to the Minister of Education structure and funding channels.

The Agentia Nationala De Consultanta Agricola (ANCA) was formed by the Minister of Agriculture to educate and assist landowners in rural villages in an effort to increase their quality of life, sustain rural livelihoods, and strengthen village population growth in the future. Today the public extension system (ANCA) provides the framework for the County Offices for Agricultural Consulting (OJCAs) in county capitals and 600 Local Centers for Agricultural Consulting (CLCA) in about 25% of the local communities. ANCA, the OJCAs, and the CLCA's (2006) employed a total of 1100 people. Of this staff, the majority of the consultants and administrators (85%) have a technical agricultural background with most of the field staff hold university degrees from their regional USAVM.

Beginning in the late 1990's, faculty members from Purdue University School of Veterinary Medicine and College of Agriculture began collaborative efforts to address emerging agricultural situations in Romania. This began with researchers studying and serving on joint PhD committees addressing challenges including the spread of corn root worm and other soil and agronomic scientific disciplines.

As faculty collaborated on research and spoke at the academic days of each university the following picture became more and more apparent: 1) Many landowners are not knowledgeable farmers or are unfamiliar with production-enhancing technologies because they are aging and many are relocated workers to the land; 2) Many small property holders subsistence only and need to move to a market-oriented production system; 3) Local ANCA educators are challenged to help agricultural producers and private sector development; 4) OJCA Educators need educational resources and extension delivery skills; and 5) many ANCA and OJCA staff educators and administrators are USAVM graduates and good relationships exist, and 6) innovative farmers and community leaders are coming directly to the USAVM seeking production and marketing advice. These discussions led to discussions of the Land Grant system and the universities/ role in discovery, learning, and engagement in the United States.

The United States' Land Grant University system is the result of federal legislation from 1862 through 1914 which established a relationship between the federal government and the states to coordinate teaching, research and extension that reaches into every county in America. The finding stream for the agricultural, consumer and family sciences and veterinary medicine come through the United States Department of Agriculture and compliment the funding of the Department of Education. As an example of one of 67 Land Grant Universities in the U.S., the Purdue University system today is a vital educational, research, and outreach enterprise. More than 39,000 students from all 50 states and the District of Columbia, three territories, residents abroad, and 131 foreign nations study at the West Lafayette Campus, and more than 29,000 are enrolled at other campuses and locations. The University attracts more international students than any other public research university in America. Involving postgraduate students in applied research and Extension education programs helps strengthen the relationship between the university and stakeholders in America and in the graduate's home countries.

Purdue touches lives in all 92 Indiana counties through its unique Cooperative Extension Service offices and eight agricultural research centers that span the state. An increasing amount of applied research is being conducted by Purdue University Extension staff and faculty in Purdue Agricultural Centers throughout the state and these trials serve as the basis of Extension educational programs. Across Indiana, Agriculture Research Programs operates eight Purdue Agricultural Centers (PACs) in areas representative of the state's varied soil types and microclimates, where more site-specific research is conducted and research results are conveyed to local farmers and other residents. ARP also works closely with Purdue Extension to transfer the research-based knowledge generated by Purdue faculty and staff to citizens in all of Indiana's 92 counties.

3. Methods

The USAVMs in Iasi, Cluj-Napoca, and Timisoara have independently developed extension and outreach services to become more market driven and responsive to emerging agricultural industries in their regions. These efforts and centers have evolved from long-standing relationships between willing faculty members and their graduates and industry collaborators. Examples that will be presented include research and demonstration farms, educational materials and resource personnel, and an educational project and Consulting Center with outside funding. It should be noted that these projects all derive their origin with willing faculty members and the support and finding of visionary university leaders. The structure of each within their university is different and dependant on the host USAVM.

4. Examples

The USAVM "Ion Ionescu de la Brad" at Iasi is developing a dairy training and education center (DANCU Research Farm) to serve the producers and farmers in Moldova region. This is a large (milking herd of 300 cows) dairy farm that has been transferred from the Romanian Research Institute the university to serve as a research,

demonstration, and teaching centre. Multiple European Union and Minister of Agriculture grants have stimulated this development and educational resource. Other extension outreach programs are available in the faculties of agriculture, animal sciences, and veterinary medicine. This is being supported by a team of dairy Extension faculty from multiple United States universities and private dairy industry leaders.

The USAVM at Timisoara has been committed to serving the western Romanian Banat region for many years. They initiated an Extension Education and Leadership unit for graduating students and now have a very well structured Counseling Center which is structurally situated in the Faculty of Veterinary Medicine. The mission of this kind of academic activity is to help people improve their lives and that of their community with the help of science. This centre resulted from external funding grant and initially specialized areas of dairy and milk quality and production. As pork production dramatically increased with a joint venture company in the Timis region, the university began collaborative research and education to directly assist and contribute to the economic and environmental success of this venture.

At the USAVM in Cluj-Napoca, faculties are working directly with sheep and cattle producers to improve production and have initiated a collaborative agreement to implement the U.S. Sheep Production Handbook into their curriculum and services in Transylvania. The university has now committed resources and set as a priority the establishment of an Extension Center with the use of their new dairy and horse facilities and strong faculty leadership in agriculture, animal sciences, and veterinary medicine. The Cluj county government leadership have now established Extension education as a priority in their strategic planning.

All of these efforts have raised the educational level and relationship between local producers and decision makers in Romania. Parallel with this, is the interaction and support of the existing ANCA which support Minister of Agriculture staff in each of the regions of the country. The USAVMs are not only serving their resident agricultural producers and agribusiness decision makers, but also provide scientific expertise to the OJCA staff in their region. These experiences of collaboration create an infrastructure dilemma in the Romanian extension delivery as the country adjusts to new member EU standards. Many long-standing agricultural practices and recommendations for efficiencies need to be re-framed to become compliant with emerging standards.

5. Potential Private-Sector Partnerships

The evolving private agribusiness expansion has created more potential for partnering in educational and demonstration methods. Contract research grants and educational efforts have long been the method of funding projects to benefit individual farmers and landholders in other countries. As producers become more aware of the need for adopting technologies of efficiency and market access, there will be more for-payment services and resources, including demonstration farms, workshops and village marketing and entrepreneurial projects. By capitalizing on linkages between faculty members and their university alumni who are now the farm and agribusiness managers, more collaborative educational partnerships can benefit people in the region. Engaging the leadership of higher education in agricultural and environmental education has been effective in improving economic stability in rural America for 100 years. Directly linking the USAVM faculty members as resources and partners of the local landholders and ANCA staff can increase agricultural business competitiveness through educational assistance to small and medium sized enterprises will improve the quality of life and sustainability of villages. The collaboration of the institution leadership is seen as the primary challenge in this partnership development.

As the agricultural businesses become economically stronger and self-sustaining, they often conduct their own research and hire university graduates to lead their research and development programs. This in turn leads to less direct dependence on the traditional extension educational systems and more collaborations and partnerships. This is the result of the success of our graduates in developing and leading businesses and production systems in

agriculture. We now have more and more educational programs provided for individuals and business clientele that demand higher level programs and are willing to pay for the service.

6. Conclusions

Romania is a new European Union member state and as such has many challenges and opportunities ahead. The USAXM universities at Cluj-Napoca, Iasi, and Timisoara have taken the lead to help landholders and agribusinesses in their respective region of Romania advance. These are excellent and commendable efforts but are independent and self-funding initiatives. If the country is to move forward in rural and agricultural development it must have a coordinated conduit between the universities and the educational institutions on the country.

Issues include rural agricultural business & marketing, contractual work systems in agriculture, sustainable crop production, forage & grazing systems to preserve environment, and animal production & milk quality assurance. The long-term outcome of this cooperative arrangement could be to establish a Center of Extension Education at each USAVM with an active advisory board of agribusiness leaders, employers, landholders, and ANCA representatives which conduct their own regular continuing educational programs/

We are confident that it will position the USAVMs to support educational outreach that will contribute to the sustained economic growth of rural villages through education of both the public and private sectors.

EMPOWERING TODAY'S PROFESSIONAL EXTENSION AGENTS TO MANAGE CHANGE: THE "LEADERSHIP INNOVATION IN NORTH CAROLINA" (L.I.N.C.) PROGRAM

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Keywords: Leadership, change, innovation, extension agents.

1. Introduction

Today's Extension professionals face changes in not only the subject matter they teach and technologies they use, but also in the very social and cultural foundations in which they work. Extension professionals must embrace and manage change so as to keep pace with the political, environmental, societal, and technological changes affecting them; they must not only understand, but also lead change (Patterson, 1991). According to Sandmann and Vandenberg, "Leadership development for the 21st century requires a change in personal practice, conceptual thinking, and organizational application. From the point of view of this framework, leadership development shifts from individual-centered to collective centered; from packaged curriculum to an evolving, customized educational process focused on building relationships; and from discrete leadership development programs to leadership development embedded in concrete issues identified by the participants in the process".

2. The North Carolina 4-H L.I.N.C. Program

So as to better prepare North Carolina county Extension agents (advisors) working with youth to handle such rapid and unplanned change at the local level, the 4-H L.I.N.C. Program (Leadership Innovation in North Carolina) was developed. The goal of L.I.N.C. is to create self-sustaining, dynamic peer networks of visionary county Extension agents across the state who are recognized experts in scanning the state's social, political, and economic environments so as to best position their county Extension youth program to effectively and efficiently address current and emerging education, economic, and health issues.

The structure of L.I.N.C. is multi-faceted and is based upon leadership development concepts of Apps (1993) and Sandmann and Vandenberg (1995). Throughout the year-long program, a major focus of L.I.N.C. is challenging Interns to better understand change as related to Cooperative Extension and 4-H Youth Development in their respective county, and to actually become agents of change for youth and their families and the communities in which they live (Cameron & Green, 2004; Cohen, 2005; Hayes, 2007; Hiatt & Creasey, 2003; Teague, 2001). This focus begins with the "anchor" texts Interns are required to read (Collins, 2006; Kotter, 1996; Kouzes & Posner, 1995); continues throughout the three seminars, and especially Seminar II on "Leading Change (Horner, 1984; Patterson, 1991); is actualized through the Interns' Innovation Projects implemented in their respective county (Brown & Evans, 2004); and is explored in the capstone international experience (Richardson & Woods, 1991).

Up to seven L.I.N.C. "Interns" are selected each year based upon a competitive application process based upon Extension program accomplishments, personal leadership philosophy, and innovation in county programming. L.I.N.C. Interns participate in a series of three, inter-connected three-day seminars during a six-month time period. Each seminar focuses upon a specific topic related to the state's current social, political, and/or

economic issues. Interns read selected contemporary leadership “anchor” texts that serve as a conceptual foundation for the program. Additionally, Interns complete standardized inventories and self-assessments that enable them to better understand and plan for personal and career development, and to assist them in team building and strengthening organizational culture. Each Intern selects a mentor who is an individual outside of Extension who guides and challenges the Intern throughout the program, serving as an informal advisor. Each Intern develops an individualized Leadership Innovation Project that demonstrates innovative and visionary professional leadership as focused upon some educational, economic and/or health and well-being issue critical to the Intern’s respective county. As a capstone experience, the L.I.N.C. Interns participate in an international educational program exploring leadership and change in a non-American society. The program’s impacts has been documented through on-line quantitative evaluations of each seminar session, as well as qualitative (content) analysis of personal journals the Interns develop to record their experiences and reflections during the program.

To date, 12 Extension agents (each from a different county Extension program and representing four of six Extension administrative districts) have successfully completed the L.I.N.C. program as Interns. They included 11 females and one male, and range in age from 23 to 55. This paper uses a case study methodology (McNabb, 2004; Thomas, 2003) to explore and describe how the L.I.N.C. program directly impacted Interns in preparing them for ever-changing professional demands and challenges in ever-changing county Extension environments.

3. Group Seminars and Required Readings: Establishing a Foundation for Change

The L.I.N.C. program required participants to meet face to face on three separate occasions, highlighting different types of innovative change each time. While apart the participants were required to keep journals, continue reading specifically chosen curriculum, and work on capstone projects. During the entire course, and after, applying the theories and concepts that they learned to their respective county 4-H programs.

For the first session the reading included Jim Collins’ *Good to Great* (2006). The book examines what it takes for a good organization to go from good to great. The author breaks down the difference between these companies to five theories. During the second session the participants examined leading change by read *Freakonomics*, written by Steven Levitt and Stephen J. Dubner. The authors use economic principles and applied them to social issue.

Participants also read Thomas L. Friedman’s (2005), *The World Is Flat: A Brief History of the Twenty-First Century* which shows the leveling of a global playing field thanks to technology. The third session readings focused on Jim Kouzes’ and Barry Posner’s (1995) book *The Leadership Challenge* and John P. Kotter’s (1996) *Leading Change*. Both books focus on the challenges involved in leadership and leading change.

4. The Intern Innovation Projects: Putting Change Theory Into Action

The Interns worked throughout their year long experience in the L.I.N.C program developing an innovation project. This project was based on the needs within their county with regards to youth development. Based on the required readings, interns learned how to identify problems, develop a plan of action and lead a collaborative team of community partners to address the need. Interns were matched with a leadership mentor that helped to guide them through this process.

Through developing these innovation projects, Interns learned to be change agents within their communities.

Topics for these innovation projects included issues such as youth leadership, health and nutrition, and dropout prevention. Interns developed unique ways to address these issues within their communities and were able to effect strategic change in their county. Many of these innovation projects have shown great impacts within local communities and are still being implemented on the county level. Some of these innovation projects have been modified to be put into practice within other counties throughout North Carolina.

5. Exploring Change Internationally: The Capstone Experience

Having participated in the L.I.N.C. program allowed the Interns to become change agents for the 21st century. They are no longer just focused on local issues within the area in which they live and work, and realize that what is taking place globally affects them locally. As leaders of change, they must develop programs effectively while incorporating universal ideas into their educational programs. Their leadership development has taken them from a local playing field to a multinational level, and their world has opened up and they are prepared to embrace it.

The program experience in Portugal working with other agencies provided Interns with a menagerie of new insights and experiences. In the process of exchanging ideas with each other, it really helped the Interns to take it beyond their boundaries into a global playing field. They have become a national network for youth and families and realize their ideas cannot be contained locally, but rather that the LINC experience has given them the ability to act as architects of change. What transpired in Portugal was an opportunity for them to gain a set of valuable skills that they could take back to the United States and use to develop programs that are innovated and reach beyond geo-political boundaries.

6. Putting It All Together

Based upon evaluation data collected during the first two years of NC 4-H L.I.N.C., the program has apparently been successful in challenging the large majority of participating Interns to not only better understand change, but empowering them to become positive agents of change for the youth in their counties. Unfortunately, the national and state of North Carolina fiscal crises of 2008 resulted in no funding being available to implement the L.I.N.C. program for a third consecutive year. However, the program has not been discontinued and will be implemented (hopefully) for a third class of Interns in 2010-2011. After all, the need for such personal leadership development programs for all county Extension agents still exists; perhaps the need is perceived as being more critical for 4-H Youth Development agents to become architects of change because of the demanding nature of their jobs and the important target audience (i.e., youth and families) upon which they focus. To quote Leifeld (1993), "We [4-H Youth Development professionals] stand at a critical time; the need for our expertise, our resources, is great. We're part of a national network, an educational organization with a demonstrated ability to respond. Our challenge is clear, our opportunity is now. We can't allow ourselves to become the victim of change, we must be the architect".

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CHANGING EXTENSION PARADIGMS WITHIN A RAPIDLY CHANGING GLOBAL ECONOMY

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Keywords: Extension reform, knowledge systems.

1. Introduction

Many countries are concerned with strengthening their agricultural extension and advisory systems, so they will have a direct and positive impact on national food security, rural livelihoods and the country's natural resources. A current problem of many national extension systems is their top-down management structure and the failure of policy makers to understand how extension systems must continue to change, reflecting the needs of all farm households, especially during periods of economic growth and changing food demand. In addition, other related problems, such as the lack of adequate financial resources, ICT capacity and properly trained staff, are all limiting extension's capacity to respond to these changing national priorities. As a result, many agricultural (research and) extension systems are having a declining impact on agricultural productivity, farm income and/or the sustainable use of natural resources.

As a result of these problems, some policy makers, scholars and donors think that public agricultural extension systems should be progressively privatized (i.e. let farmers pay) or outsourced to the private sector. Others believe non-governmental organizations (NGOs) have a comparative advantage in carrying out specific extension activities, since their staff members are more highly motivated. Therefore, these different players are becoming increasingly competitive in pursuing donor resources, especially in developing nations. In short, these new arrangements raise important policy and institutional issues that must be carefully addressed in achieving specific national agricultural development goals.

This paper will begin by outlining these different national agricultural development goals and their relationship with key extension functions. These are critical linkages that extension leaders and the donor community should consider as they work to strengthen increasingly pluralistic extension systems that will serve the needs of all farm households, including:

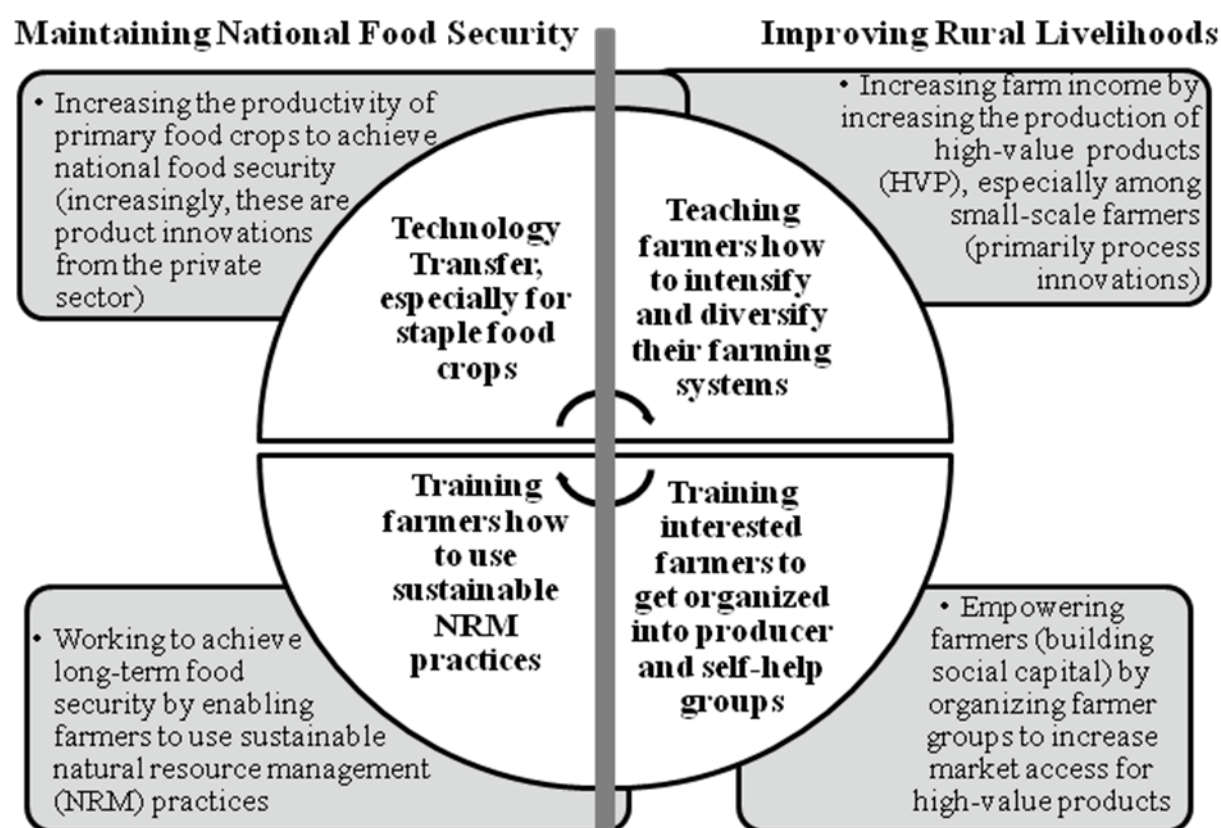
1. *Achieving national food security through technology transfer*, which was the dominant extension strategy in most developing countries during the 20th century;
2. *Increasing farm income* through a more market-driven extension strategy that will enable farmers to intensify and diversify their farming systems based on market demand;
3. *Empowering farmers* by getting them organized into groups (social capital) based on common interests, to gain more efficient access to both inputs and markets; and
4. *Promoting sustainable natural resource management practices* to address soil nutrient, land degradation, water resource and other major problems, including global warming.

2. Conceptual Framework Relating National Goals and Key Extension Functions

Figure 1 on the following page illustrates the relationship between major agricultural development goals and different extension functions. First, to achieve and maintain national food security, technology transfer for the staple food crops is a key function that must continue to be carried out. Early in the development process,

before input suppliers are well established, extension agents can play a critical role in delivering technical recommendations to all types of farmers. As input supply firms develop, however, they will take over increasing responsibility for this technology transfer function, but the public sector can continue providing “objective” information on the specific technical options being promoted by different input suppliers.

Figure 1: Key Functions of Extension in Achieving Specific National Agricultural Goals



When countries achieve national food security, it is common for staple food prices to gradually decline, reflecting the relative supply and demand for these products. As staple food prices decline, then small-scale farm households are in a dilemma. Their land base is too small to expand production and, with less income, it is increasingly difficult for them to purchase inputs and maintain their productivity levels. Therefore, they must pursue a different strategy and/or options by which they can increase farm household income.

At this point, there needs to be a “paradigm shift” where public extension shifts more of its focus and resources to a second national goal, which is to improve rural livelihoods (Swanson, 2008). A key element of this strategy is to increase farm incomes. To do so, the focus must shift toward the intensification and/or diversification of farming systems. However, the relative availability of land, labor, capital and local agro-ecological conditions will directly affect specific options that different farm households can pursue in diversifying their farming systems. Another critical factor is access to markets, including transportation, all weather roads and distance to different local, regional, national and, even, global markets. In short, all of these factors will determine which crop, livestock and/or other products can be successfully grown and marketed in each community, sub-district and district within a country, including access to available technologies for these different enterprises. However, to achieve this goal, extension must begin shifting more of its focus, resources and expertise.

A third objective, directly related to the diversification of farming systems, is the need to get interested farmers organized into producer groups for different high-value crop and livestock products, so they can increase their access to both inputs and markets for those enterprises. Once these farmer groups are organized and gain experience, they are more effective in articulating their needs to extension and other agricultural institutions, including research. In addition, once women farmers begin working together in groups, they begin sharing information about improving family nutrition, hygiene and health care that can further improve rural livelihoods, especially for children.

Finally, for a country to maintain national food security over the long-term, it is critical that farmers individually and collectively know how to maintain their soil fertility, stop land degradation, and to make efficient use of increasingly scarce water resources. These are “public good” issues, which the private sector will generally not address; therefore, the public extension must allocate more time, attention and expertise to these growing natural resource management (NRM) problems. Another part of this problem is that most sustainable NRM practices cost farmers both money and labor, and there may be no immediate benefit from these additional costs. Therefore, it will be difficult to convince poor farmers to continue investing and using many sustainable NRM practices unless they shift to producing more high-value crops and products to increase their farm income.

3. Factors Affecting the Need for a Paradigm Shift to a More Innovative Extension System

Until the recent economic crisis, most developing countries, especially those in Asia, were achieving significant economic growth. For example, most Asian countries averaged about 8% economic growth over the past 5 years, while many Sub-Saharan African countries achieved nearly 5%. When per capita income rises, food consumption patterns begin to change. For example, urban consumers start eating more vegetables, fruit, meat, milk, eggs and fish, while their consumption of staple food crops begins to gradually decline. Since most of these high-value products are more labor-intensive, they represent a comparative advantage for many small-scale farm households at least until some commercial farmers scale-up their production, generally later in the agricultural development process.

As small-farm households begin pursuing these new enterprises, both small-scale and women farmers begin acquiring new technical, management and marketing skills. In addition, as they begin organizing producer groups to market these high-value products, then these participating farmers learn new organizational and leadership skills. These skills are particularly important as farmers become more effective in articulating their technical, management and marketing needs to extension and other service providers. In the process, some farm household members, especially older children, begin moving to off-farm jobs, such as post-harvest handling and processing of high-value products.

4. How to Create a more Innovative Agricultural Extension System

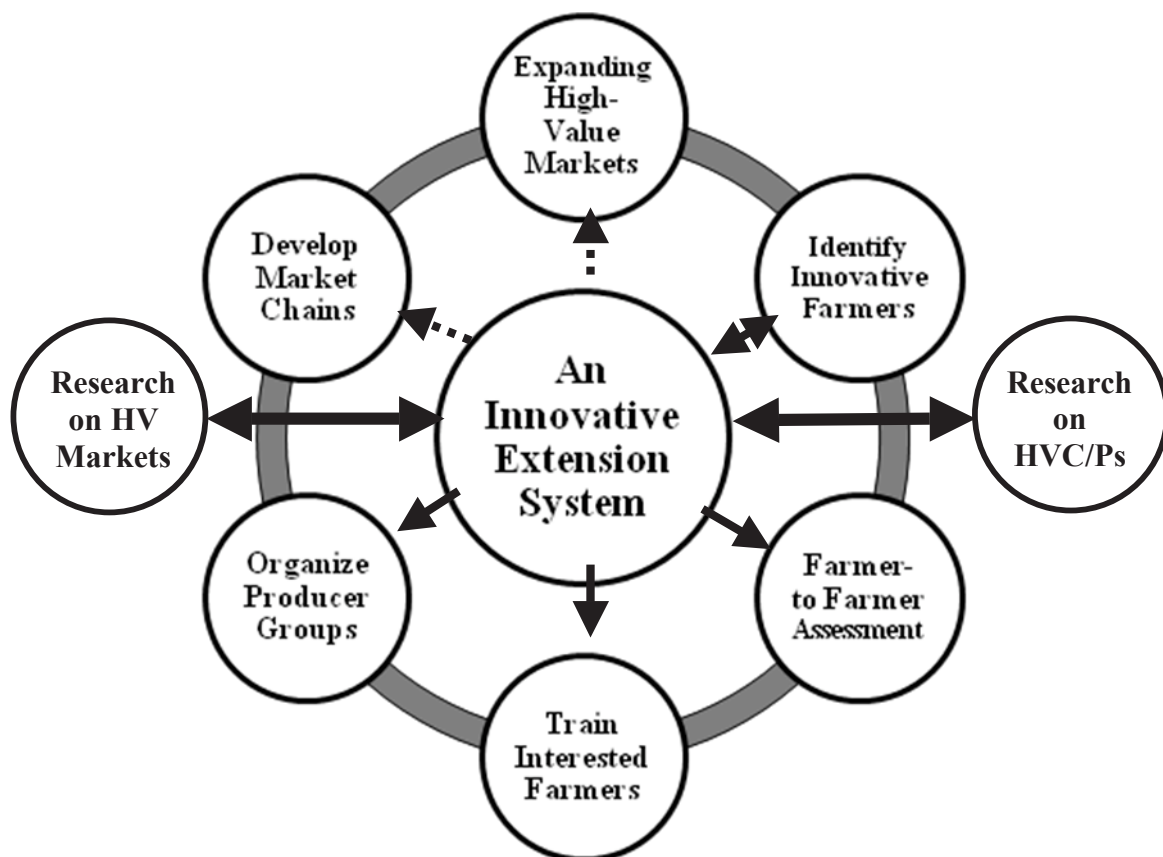
The process and procedures for creating a more market-driven extension system for high-value products has been described elsewhere (see: Singh, et al 2006) and will not be repeated here. In addition, there are an increasing number of publications about agricultural innovation systems (AIS), including extension's role in this new conceptual framework (see: World Bank, 2007, Daane et al. 2009). However, what remains unclear about this emerging framework are the specific steps to be followed in operationalize these concepts in creating a more innovative extension system.

With respect to extension services for small-scale farm households, one critical factor is the source of new agricultural innovations. While research still plays an important role in this overall process, another key player during periods of changing consumption patterns in developing countries are innovative farmers who play an important “tactical” role. First, they identify potential markets and then determine how best to produce and market specific high-value crops or other enterprises that meet the changing market demands within their area.

As outlined above, the production of most high-value crops or products is dependent upon available markets, agro-ecological conditions and available technologies.

Most of the production technologies for these high-value crops/products are already available somewhere within most countries or globally. However, it takes an innovative farmer to work out these production and marketing details. Once these innovative farmers have been identified by extension, then other small-scale and women farmers can begin learning about these new opportunities and then get started in producing these enterprises on a small-scale to begin increasing their farm household income. Figure 2 outlines the primary steps in this process of first identifying innovative farmers and then introducing other small-scale farm households to these new market-driven opportunities.

Figure 2: An Innovative Extension System Strategy to Help Small-Scale and Women Farmers Diversify Their Farming Systems and Increase Their Farm Income



The local market-demand for most high-value products will be initially limited; therefore, extension must make farmers aware of the potential risks and how best to deal with them. First, different farm households, based on land and labor resources, will need to diversify into the most suitable high-value products, as well as to lengthening the production period to avoid saturating the market at peak seasons and driving down prices. In addition, as small-scale and women farmers get organized, first into producer groups and then into larger producer associations, so they can begin supplying larger urban or even global markets with specific products (Mishra et al 2009). All of these activities will be sensitive to changes in the economy and markets, so farmers will need greater access to current market information.

5. Conclusion

Based on the experience in different transitional countries, like China, India, Indonesia and Vietnam, both domestic and international markets for different high-value agricultural products are rapidly increasing. These changes in market demand offer important new opportunities for small-scale and women farmers to increase their farm income and, in the process, to improve rural livelihoods. These new high-value crops and livestock products are also more labor-intensive; therefore, these enterprises can create new employment opportunities during both the production and post-harvest handling of these products. As empirically documented in India (Singh 2006) and other Asian countries, agricultural extension systems that begin focusing on and facilitating farmer/market-driven innovations can play a significant role in increasing farm incomes, improving rural livelihoods and accelerating the agricultural development process.

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THE ROLE OF AGRICULTURAL EXTENSION IN PROMOTING THE GOALS OF RURAL PRODUCTION COOPERATIVE IN IRAN

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Keywords: Extension, rural production cooperative.

1. Introduction

In spite of the global efforts and actions in the area of agriculture and the rural developments over the several decades and their considerable results, it seems that these processes have not been satisfactory. The essays of a lot of international organizations, involving in the advancement of villages, in order to decrease what is called "the development break" are still far from the expectations and the optimism. The achievement of the millennium improvement goals (MDGS) is surrounded with ambiguity and many criticisms especially within the "ultra-furtherance" paradigm have been made in regard with the country and the agrarian progress particularly in the recent decade. Also, the trends and the wide changes in the environment like the globalization phenomenon, the unity of markets and the rapid technological changes on one hand, and the universal and regional challenges (like the earth heat, the climate fluctuations and also the local environmental crises) on the other hand, have created complex conditions for the progressive planning. The common models of the extension services, as important parts of the development plans, are confronted with numerous problems and these activities are in the face of the serious difficulties in the areas of the financial resources and also the organizational positions in the agricultural sectors. However, in many developing countries and also in a lot of rural and farming sub-sectors, the extension services are still the only available and reliable facilities for accomplishing the development plans. Consequently, the reconsideration of the models and approaches, as well as their improvement are essential ensure the improvement of the country development trends and the achievement of the food security and safety.

2. Advancement of agriculture in Iran and the role of agricultural extension

The history of the extension services in Iran is more than fifty years long. During the last three decades, the state extension services, as a part of the agriculture ministry, operate with a hierarchical organizational structure in over thirty provinces, more than three hundred towns and about one thousand rural services centers across the country. These activities have included the educational and extension activities and the distribution of technologies. The most important targets of these plans have been the following groups: the individual farmers, the farmer members of the cooperatives and the production associations, the country women and youth, the graduates of agronomy, the institutions and services guilds of the farming sector. The general aim has been the multilateral advancement of the agricultural and rural sectors. The objectives have been: "The increase in production and productivity, the accomplishment of food security, the improvement of the villagers' incomes, the improvement of mechanisation, the enhancement of the application level of technology in fields, the development of the farming infrastructures, the consolidation of the fields, the improvement of irrigation, the expansion of aquaculture, the advancement of the cooperative sector, etc."

In the current era and in the near future, one of the most important human issues and problems concerns the provision of food and ultimately the increase of the agricultural output. In short time, the countries which depend on importing agricultural products could no longer be able to import easily food produce and just by having the energy sources. It is in this direction that the world countries in the different forms and with the variable climatic and geographical conditions in order to get the hands on the maximum yielding of the agrarian

outputs and attaining self-sufficiency in the basic productions by spending the huge expenditures and the extensive and multi-lateral studies are trying to find the best kind of production systems and organization, applying the best techniques in generating the food materials and using an appropriate technology for the mass production and increasing the performance of the agrarian yields. Organizing the farmers within the rural production cooperatives, as apart of the exploitation system, is one of the practical and proper approaches that in many countries including our nation in the direction of the cooperation and interaction of the yeomen in the optimal use of the production sources has been implemented.

One the one hand, employing an information and training system is one of the basic requirement and the key to the public organizations success such as the production cooperative companies; In this procedure, the training and promoting system can play an effective role in disseminating the applicable information and knowledge and the congruent skills and techniques through the farmers. The role of the extension system, based on training, has been useful in the process of the organization of the country production associations and in providing the continuous training and improving the technical and pragmatic knowledge of the cultivator, which is more important than the material investments and can be helpful in enhancing the efficiency of the rustic generation association companies; In this respect, recognizing the role of agricultural extension in reaching the objectives of these organizations can help greatly the planners to find the successful village production cooperatives.

3. Operational definitions of the terminology

Extension: The function of extension in the rural production cooperatives is the implementation of the instructing and training activities for the achievement of the directions of these associations and eventually the increment of the incomes and the improvement of the level of the farmers livelihood. Based on this, the extension of the research in the form of the instructing methodology (including the training courses, the lecture sessions, the promotional visits, the scientific expeditions, the contact between the promoters of founding the well-recognized fields and gardens, the training instruments) for attaining the technical objectives of the rustic yielding organizations is in question.

Rural production cooperatives: they are the companies to implement the unified and specialized managerial processes to make the maximum use of the water and soil sources, to conduct the infrastructural plans, the consolidation with maintaining the individual ownership, the appropriate employment of the agricultural entities, tools and machineries and the enhancement of the irrigation efficiency can cause the increase in the rural and agricultural per-capita income and improvement of the rustic people lives in different areas.

Village: it is the residence of a rather small group of people (in the organizational respect, fewer than 5,000 people) who have relationship with each other economically, politically and socially. If this liaison within their residential scopes creates a kind of unity among them, it is called the country or a village.

4. Materials and methods

In this research, the relation between the independent variables and the dependent ones are examined; therefore, this research is a type of unity or similarity and considering several variables that have already influenced the views and opinions of the respondents and that the researcher has not had any controls over them, have been involved; then, we can consider this exploration as a semi-experimental and concluding sort, in which for collecting the information and data about the research ends, the method of formulating and filling out a questionnaire has been applied. The independent variables in this study are as the following: the level of knowledge, the frequency of attendance in the promotional lectures, the agricultural work experience, the income, the frequency of presence in the promotion classes, the number of the contacts of the promoters and the farmers, the application level of the promoting publications, the times of visiting the performing fields and gardens, the number of using the propagation newsletters and the dependent variable in this study is advancing

the technical directions of the country production co-operations that have three levels including the consolidation of the fields, the mechanisation and the increment of the irrigation efficiency. The survey population of the research comprises all the members of Tehran rural production cooperatives who are virtually 1,000 people and are distributed in 8 towns and 42 villages of Tehran (Chart1). Random sampling is easy in a way that for determining the extent of the sample, first, about twenty questionnaires, as test filling, were completed by the members of the production association companies in the cities of Karaj and Shahriar and the variance of a number of the questions of the forms were measured as a pre-estimation that some of it is mentioned in the following:

$$n^2 = \frac{N(T.S)^2}{Nd^2 + (T.S)^2} = \frac{1600(2 \times 3/5)^2}{1600 \times \%4 + (2 \times 3/5)^2} = 113$$

In this manner, the form, after numbering the estimated extent of the sample (113) and in relation to the number of the rural production cooperative members of each city, was formulated and finally, in a simple random way, the filling of it by the present farmers was carried out.

Most of the questions were in the closed form and to survey the respondents, the Likert spectrum was practiced. Considering the low level of knowledge of the associations, members the filling of the question forms was done in the presence of them. To specify the cohesion of the questionnaires, besides the detailed negotiations with the authorities of the afore- mentioned entities and the regional publicity officials a number of twenty forms were completed in a some of Karaj cities and according to these procedures, the final questioning paper was provided; For the final specification, the information regarding the 10 questions of the form that were in the direction of the main purpose of the research were put into the computer and the coefficient of Alfa-kro Mebakh was estimated 89%. After completing the questions, the extraction of the data was conducted and the garnered information was inserted in the chiefs and was analyzed & described by using the statistical softwares, SPSS under windows. In the descriptive way of categorizing the examinable items, the criteria such as the average, the variance, the covariance, the mode and the medium were applied and for the analysis of the obtained results the statistics such as Espirman unity coefficient, the F test regression and the average comparison tests were utilized. To determine the effects of the independent variables of the research on the dependent variable, all the reliable variables altogether by using the linear-multi- van able regression and the: phased practice were applied.

5. Findings and discussion

The results of two research are provided in the two descriptive & analytic parts:

A. The descriptive outcomes

In this part, the extension features of the examined society were taken into a consideration and it was specified that 32.5 percent of the participants of the field consolidation courses, 36.6 percent of the mechanization classes and 50% of the members of the classes that have been held on the increase in the irrigation effectiveness have thought of them as beneficial and the mean numbers of participation in the training courses for each participant (from the initial membership) was 8 times. Considering that the visits to the training lands and gardens for the membership of the selected production cooperatives have been arranged it was identified that 50. 9 per cent of the members have involved in these meetings at least 2 times from the beginning of the inception.

In addition to holding the classes concerning the technical aims that is an emphasis on the group, the agrarian promoters for each one of the three technological directions have had referrals to the members for training that was determined they, in relation with the fields consolidation once on the average, in relationship with the mechanization for 3 times and about the increase in the irrigation effectiveness for 3 times in a medium way in a month, have met the farmers, who are the membership of the rural production cooperatives. Now we should see how much the organization of the classes, the attendance of the promoters the referrals have made the knowledge and awareness of the farmers increase; In other words, what has been extent of using the knowledge

of the promoting agents about the technology ends. This research showed that the level of the practice of the promotional agents knowledge by the members of the rural production associations of Tehran in regard with the field consolidation has been in a very low level (34/2%); And, this degree in relation with the increment of the irrigation efficiency on the average (36%) and the mechanisation has been a high level (36%) that depicts that whenever a class a referral or visit have been done concerning the increase of the members awareness of implementing an optional irrigation have been performed, the farmers have approved them; this is because of the low water source of the region that cultivators are prompted to practice the under pressure irrigation and the other ways of water retaining with not only maintaining the lack of the crops pests and also the rise in production. Moreover, this research demonstrated that only 35% of the cooperative members of Tehran have been familiar with the country production association goals and the application of same elements such as the publications (two times a month), the promotional film (once a month) and the lecture meetings (4 times a month).

B. The analytical results

To determine the impact of the characteristics of the rural production cooperation members a test, was done on three levels of technical aims. (the field consolidation, the mechanisation and the enhancement of the irrigation performance and this outcome was contrived that these features: (including the age, the education, the occupation, the agricultural work experience and each member's under cultivation field and the income level) have had no effects on improving the technical purposes but the relation of the conducted promotional actions in the rural production fields are as the following:

1. The promotional activities, done in the rural production associations of Tehran, have a meaningful liaison with their unifications which means that the more the promotional activities have been; the more the consolidation of the fields have been; That is, the hypothesis of H1 is approved with a 90% certainty.

$$F = 7/084 \quad P = \quad r^2 = 0/317 \quad r = 0/61$$

The regression equation between these two variables are as the following:

$$y=0.162 \times x$$

2. The performed extension activities in the rural cooperatives have a meaningful relationship with the mechanisation of the fields of the rural production institutions; that is, the more promotional activities have increased ,the more the rural yielding cooperations members have mechanised their fields.

The regression equation of these two variables are the following:

$$y = 0/612 \times \quad F = 3/81 \quad P = 0/04 \quad r^2 = 0/317 \quad r = 0/03$$

3. The promotional activities, alone in the rural production associations, have no relationship with the rise of their irrigation performance; that is, the advertising actions among the members of the rural production cooperatives of Tehran have not sparked the enhancement of their irrigation performance

$$r = 0/104 \quad F = 1/29 \quad P = 0/25$$

Furthermore, in order to measure the general influence of the independent variables on the dependent ones, the multi-variable regression was applied in a phased manner. This method, by comparing all the variables at the beginning, puts the most important factor in the equation; this trend also in the following steps, based on the extent of the factors influence are repeated and will prolong until no independent variable could enter the equation.

6. Considerations

A) Out of the independent variables, only 3 ones, the frequency of visiting the performing gardens and fields, the income level and the level of education explain totally 68% of the changes in the dependent variable of the field consolidation and the other fluctuations resolved by the other unknown variables.

C) Furthermore, among the two independent variables, the times of visits to the performing fields and gardens and the frequencies of participation in the training courses explain totally 33 percent of the changes in the dependent variable of mechanization.

D) In regard with the reliable variable of the increment in the irrigation performance among the on reliable variables, the three variables, the income level, the times of visiting the performing gardens and the number of presence in the promotion lectures have had fifty-two percent changes.

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TRAINING OF DANISH AGRICULTURAL ADVISERS – TRENDS AND CHALLENGES

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Keywords: Training, agricultural advisers, trends, challenges, advising methodology.

1. Introduction

We are going to present trends in the training of Danish Agricultural Advisers and the challenges that our colleagues and ourselves, who are responsible for the training, are facing. The focus will be on the training in advising methodology, whereas the training in technical matters will be omitted.

2. Organisation

The Danish Agricultural Advisory Service (DAAS) has 3,500 employees, which makes it Denmark's largest consultancy firm. These employees are working in 35 local centres and one National Centre.

The tasks of the advisers are to provide advice to 50,000 farmers, who are both the users and the organizers of the advisory service. 30,000 of those farmers only farm part time. The advice covers farm production, farm management, finance and tax, buildings and environment, human resources, and legal matters.

The National Centre is responsible for dissemination of knowledge to local centres, development of new activities, computer programs, education and in-service training of local advisers. It is important that the system is based on the actual need of the local centres rather than the decisions of The National Centre. The National Centre cannot decide on what actions the local centres do, it is the opposite.

3. Payments for Services

The services of DAAS to the farmers are financed entirely by the farmers themselves. There is no state subsidy. The average cost full time farmers paid in 2008 for advising compared to their turnover is shown in the following table:

Table 1: Advising Costs for Danish Full Time Farmers in 2008

	Plant production	Dairy	Pigs
Production Size	174 ha	130 dairy cows	298 sows and 4,685 baconers
Turnover	344,000 €	535,000 €	762,000 €
Accounting, Tax and Farm Management Advice	4,900 €	6,100 €	7,300 €
Technical Production Advice	4,400 €	6,800 €	5,000 €

4. How the Advisers See Themselves

The advisers in general see themselves as professionals in the sense, that their professionalism is more linked to their technical knowledge of the subject, they advise (plant production, cattle breeding etc.) and not so much with the profession as advisers as such. We find this natural: Most of the advisers are educated solely in their technical field and not in advising methodology at all.

5. General Trends

The trends in the in-service training of Danish Agricultural Advisers are rather clear:

- More training activities at the local centres and fewer central activities
- Short cost-efficient courses or longer educations, often in several modules combined with on-the-job training
- More focus on usability

The situation and the trends present challenges to us as providers of training on advising methodology: How do we encourage the essential training for the advisers, that they respectively find unnecessary and time consuming?

6. Different Categories of Training

The challenges are met by offering different products to the advisers. They can be categorized as follows:

- Advising methodology courses for agricultural students
- In-service training in advising methodology
- Action learning projects
- Supervising advisers
- Expert groups

7. Advising Methodology Courses for Agricultural Students

For many years we have been teaching advising methodology as guest lecturers on the agricultural university and agricultural colleges. Two years ago we were chosen to be responsible for teaching advising methodology in courses (approx. 100 hours per year) for Advanced Diploma students on the agricultural colleges. We have developed a compendium for these courses. The Advanced Diploma students are the main source of supplying new advisers to the advisory service. Thus an interest is created in advising methodology prior to adviser employment of the students.

8. In-Service Training in Advising Methodology

It is difficult to sell courses in advising methodology on a stand-alone basis. Therefore we often offer courses with a variety of methods of training. These methods combine training in technical matters with training in advising methodology. This way, the participants both update their technical knowledge and their ability to use these skills in the workplace.

A typical example is our course on budgets and farm accounts. It is a four day course divided in 1 + 2 + 1 days. The participants learn both advising methodology and tools and methods for analyzing budgets and farm accounts during the course and in the periods between the course days they try their new knowledge in practice. Their experiences are then used in the following days of the course.

We also offer an adviser education consisting of three 3-day modules with two action learning days and one day for the exam. During the three modules the advisers focus on the adviser and the farmer, the adviser and his colleagues, and the adviser and the selling organisation.

9. Action Learning Projects

We often work in close connection with one or several local centres in improving advising methodology on an action learning basis. This way we use the different skills and competences of farmers, advisers from local centres and the National Centre. The projects are often financed by research funds, that allow us to pay the local advisers for their participation in the project.

10. Supervising Advisers

We often supervise the advisers in their normal work situations, where they advise farmers.

We find it important to view the advisers in their workplace, and use their advising procedures as a starting point for future possible improvements.

Typically, the supervision process starts with an agreement on a contract. This agreement states what topics does the adviser prefer to be supervised in. The usual topics can be exemplified as follows: Do I hear what the farmer is saying, and thoroughly understand them?

How do I conclude the advisory session? Following the advisory session, feedback is given on the chosen topics, a discussion of possible development in their advising methodology, and finally, sometimes an agreement is made on a new supervision.

Briefly, our experiences are as follows:

- The advisers are always met with total confidence by the farmers
- In general the advisers are professionally competent

- Possibility of improvement of advisory methodology

To better explain the brief experiences above, we could focus on the common difficulties the advisers are facing today. These can be divided into three phases: Before and the beginning of the advisory session, mid-session, and the end of the session.

Often the advisers don't use enough time to prepare themselves for the sessions, and don't find two to three key issues to discuss. An agenda is not always sent to the farmer before the meeting. As a result of the absent agenda, the farmer is seldom questioned about his issues for the agenda. A detailed time frame is rarely in place, and therefore is not acknowledged by the farmer.

During the meetings with the farmers, it is a common practise that the advisers are not focussing their full attention as to what the farmer is stating. As a result, there are miscommunications and insufficient advising.

It is difficult for the advisers to stay on schedule, and they often have difficulties in concluding and evaluating the advisory sessions.

11. Expert Groups

Expert groups consist of advisers from local advisory centres with the same often quite "narrow" area of expertise. The idea of expert groups is to let the experts take responsibility for their own competence development. This is a way to recognize the knowledge of the local advisers.

Experts from the National Centre serve as facilitators, which means they participate in the groups and help to structure meetings, find lecturers etc. In this way both national and local experts benefit: The experts from the National Centre get a valuable insight in the practical experiences of local advisers, who on the other hand improve their theoretical knowledge and learn from their colleagues.

12. Conclusions

To summarize we try to make the training as close to the advisers' daily tasks as possible and this way create a practical use of advising methodology.

FARM ADVISORY SYSTEM AS A MEAN TO PROMOTE CROSS-COMPLIANCE

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Keywords: CAP Implementation, Italy.

1. Introduction

In the contest of the reform of the Common Agricultural Policy (CAP) adopted in 2003, extension services have experienced of a new attention. In fact in the policy makers' purpose they are both a mean to make farmers to comply with compulsory rules and an instrument to improve farms competitiveness.

Firstly, in the regulation 1782/2003 the necessity to create an involving advisory system with the aim to help farmers to meet the standards of "modern, high quality agriculture" was established.

Member States were asked to create a "comprehensive system" offering advice to farmers to become more aware of impact of their activities on environment, food safety, animal health and welfare. In spite of the more general statement expressed in the "whereas", article 13 of the regulation proposed farm advisory system (FAS) as a support to implementation of "cross compliance", that is a few rules consistent of "statutory management requirements" (SMR) and some "good agricultural and environmental conditions" (GAECs). In fact, the regulation established that FAS must cover "at least" the SMRs and the GAECs.

In a second time, measure to support FAS have been introduced in the regulation 1698/2005 on support for rural development. These measures were set in the axis 1, that is in the framework of the support improving competitiveness of farms.

According to art 24 of Regulation 1698, a support can be provided to meet costs arising from the use of advisory services if the advisory service cover "at least" cross compliance requirements and occupational safety standards based on Community legislation.

In a first time Italian Regions¹ interpreted this "minimum" criteria as an opportunity to extend both the aims and the contents of FAS to all the possible farmers' needs related to environmental impact and earning improvement. European commission did not agree with this approach so Italian regions were obliged to renegotiate their rural development plans giving more weight to cross compliance issues.

In the definition of the measures related to FAS, Italian Regions have expressed priorities according to their natural resources and economic specificities.

2. Measures related to FAS in Italian rural development plans

FAS established by art. 13-16 of R.1782/2003 does not have to be necessarily found via Rural Development policy or other Community support. Therefore the Italian regions may use or not Community Funding in order to set up their FAS.

In Italian RDPs, measures specifically related to FAS are:

- 114 for use of agricultural and forest advisory services

¹ In Italy, Regions are the authorities in charge of the implementation of the policy for the rural development.

- 115 for the setting up of farm advisory services.

In addition we can add measure 111 for the actions to training, information and diffusion of knowledge for to improve knowledge and human capital.

We consider the financial weight of each measures as proxy of their relevance.

At European Community level, about on 483 million of euro are allocated to the measures addressed to extension services, that is about 7% of Axis 1 and to 3% of the total public European Community funding by regional RDP (Rural Development Plans). Resources are mainly addressed to measure 114: over 240 million of euro, corresponding to 4% of Axis 1 and only 1,5% on the public resources assigned to total RDP. Measure 115 for the starting of farm advisory services is tightly connected to the 114. The total public European Community funding for such measure is very small; in fact it is equal to about on 26 million of euro. In Italy many regions did not activate this measure.

Other components of the knowledge system, such as “professional training” and “information”, are contained in the measure 111 which are addressed to employees of agricultural, forest and agro-food sectors. Totally, public European Community funds allocated for such measure is equal to more than 214 million of euro, equivalent to 3% of Axis 1 and to 1% of total RDP.

Main elements in Measure 114 are:

- Contents: cross-compliance is compulsory requirement, whilst the improvement of whole performance is a secondary and optional action;
- Beneficiaries: agricultural and forest farmers;
- Total amount: total amount for the use of advice by farmers paid by the RD programme cannot overcome 80% of the expense, for a maximum amount of €1.500 for advice (except Sicily that foresees a maximum amount equal to €1.000 for advice); 20% of budget spent per year dedicated to the use of FAS by farmers it is paid by the farmers;
- Advisors: the FAS operating advisors must be authorities and private bodies but not single people (the only exception concerns the Emilia Romagna); such advisory bodies have to received qualification by demonstrating their competency and reliability (e.g. staff qualification, administrative and technical facilities, experience, etc.);
- Monitoring the effectiveness of FAS: contracts between farmers and advisory bodies must contain list of provisions of advice for each: date, time, type, particular aspects.

Besides the obligatory “minimum” principle of respect the cross-compliance, many regions have adopted priorities for the choice of farmers beneficiaries of the measure. Notably, there are following priorities in accordance with requirements affecting livestock (that is the thematic on which this paper focuses), in relation to implementation of cross compliance and in accordance with different regional contexts.

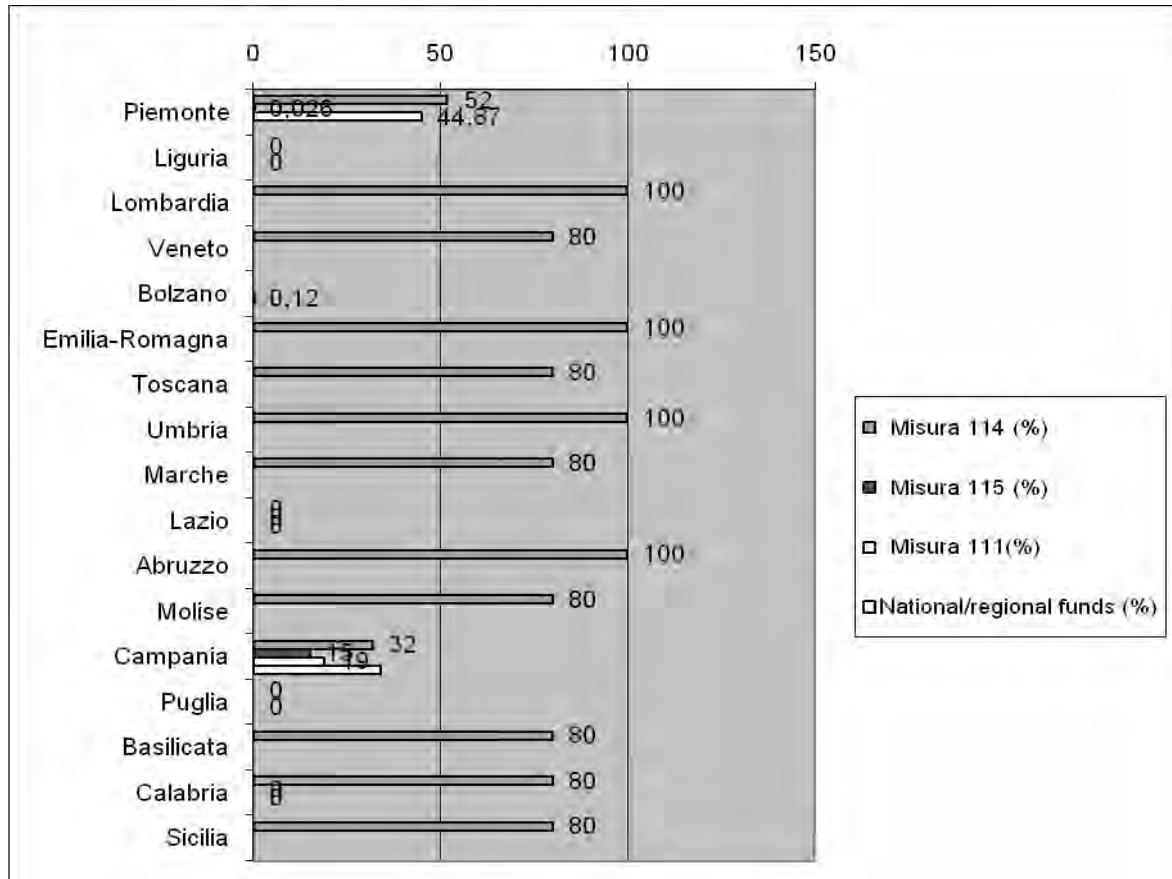
Particularly, five regions - Liguria, Veneto, Marche, Lazio, Sicilia – consider a priority condition that the farm is set in Nitrate vulnerable zones (Nvz). Besides, there are two regions also that consider as priority condition to have finalized programs, as environmental issues, animal pathologies, etc. (Piemonte) and to have farms with cultivation methods and breeding for animal health and welfare (Marche).

To improve effectiveness of FAS it is very useful to collect some information among farmers. In fact, according to art. 146 of Regulation (EC) No 1782/2003, the regions have transmit to European Commission the information related to measures for implementation of the FAS. In regard that, we analyze the results of following information for Italian regions concerning the livestock issue: the financing of the FAS in order to set up it, the group of farms receiving priorities and the number of farmers reached per group (if data is available),

the methods used to provide advice to farmers, eventual problems encountered during the organisation and management of the FAS and suggestions for the future.

The way by the total cost of the FAS is financed in Italian regions is following, in order to percentage of funding (figure 1)².

Figure 1 – Funding of FAS in Italian regions



Source: Our elaboration by data of questionnaires

In north regions it is that:

in *Lombardia* and *Emilia-Romagna* the measure 114 finance 100% ;

in *Veneto* the measure 114 finance 80 %;

in *Piemonte* the measure 114 finance 52%. In this region the FAS is financed also by measure 115 (0,026%) and 111 (44,87%);

in *Liguria* the FAS is financed by measures 114 and 111. There are also regional funds (by L.R. n. 22/04);

in *Bolzano* the measure 111 finance 0,12%.

In central regions it is that:

in *Umbria* the measure 114 finance 100%;

² For the measure 115 on the Setting up of FAS, the regions have describe only the financing of farm advisory services, not the farm relief and farm management services which are also included in measure 115.

in *Toscana* (in this region also the measure 111) and *Marche* the measure 114 finance 80%;

in *Lazio* the FAS is financed by measure 114, 115 and 111.

In south regions and islands it is that:

in *Abruzzo* the measure 114 finance 100%;

in *Molise*, *Basilicata*, *Calabria* (in this region also the measures 115 and 111) and *Sicilia* the measure 114 finance 80 %;

in *Campania* the measure 114 finance 32 %. In this region the FAS is financed also by measure 115 (15%) and 111 (19%). There are also national funds for 34% of the FAS;

in *Puglia* the FAS is financed by measures 114 and 111.

Three regions (*Trento*, *Valle d'Aosta* and *Friuli Venezia Giulia*) don't finance the FAS with Community funds for many reasons. For example they have well established advisory body's, there are few funds offered by regional RDP and excessive bureaucracy, they want to have possibility to give advice for free.

Table 1 – Priorities for the use of FAS affecting livestock issue in Italian regions

	Livestock farms	Nvz	Finalized programs	Glossary projects
Piemonte		medium	medium	
Liguria		high		
Veneto		high		
Trento	high			
Marche		high		
Lazio		high		high
Basilicata		medium		
Sicilia		high	high	
Sardegna		high	high	

Source: Our elaboration by data of questionnaires

In order to the group of farms (their participation is always voluntary) receiving priorities (the measure of level priority - high, medium, low - is attributed subjectively by each region) and the number of farmers reached per specific group until this time, as it regards livestock and relative requirements to implementation of cross compliance, we have following results (table 1):

In north regions there are:

Trento with high priority for 1500 livestock farms reached;

Liguria and Veneto (741 farmers reached) for farms in Nvz;

Piemonte with medium priority for farmers in Nvz or in zones that have finalized programs like animal pathologies and that have use environmental measures of past RDP 2000-2006.

In central regions there are:

Marche and Lazio (also farmers having glossary projects) with high priority for farmers in Nvz.

In south regions and islands there are:

Basilicata with medium priority for farmers in Nvz;

Sicilia with high priority for farmers in Nvz areas, and also in zones that have risk by pesticide pollution;

Sardegna with high priority to following farmers:

- farmers of ovines and goats (around 10.500 farmers reached) beneficiaries of measure on animal welfare of past RDP 2000-2006 and that participate to obligatory training on requirements affecting cross-compliance;
- livestock farmers (around 180 farmers reached) in Nvz;
- farmers of ovines and cattles (around 6.000 farmers reached) participants to regional programs technical support on management requirements affecting livestock.

The methods used to provide advice to livestock farmers - related to SMR, like protection of environment (e.g. protection of waters against nitrates), animal health and welfare, and GAEC, like to ensure a minimum level of maintenance affecting livestock issue - they are classical methods used by extension services.

The largest method is “one to one on the farm”. Besides six regions (Bolzano, Trento, Valle d’Aosta, Friuli, Liguria, Calabria) use also “small group advice on the farm”, two regions (Sicilia and Sardegna) also “small group advice outside the farm” and “publications”.

The problems encountered during the organisation and management of the subsidised FAS are following.

- The need of empowering of network of the different advisory body’s and also of training advisors.
- Difficulty of the farmers in accepting an advisor the part of a consultant who is obliged to report any shortcomings
- High costs concerning great bureaucracy and controls.
- It remains difficult to control the efficiency and effectiveness of FAS implementation.

It results too much strict that FAS fund almost exclusively the activities of cross compliance implementation, while the farmers require the advice for improvement of the global output, introduction of innovation and farm diversification (in the respect of cross compliance).

The FAS could have point of view broader respect to implementation of cross compliance. The FAS could operate in network of farms, public institutions, advisory body’s and public and private research board finalized to development and transfer of innovations in the agricultural, forest and agro food sector. In such way the FAS would make integral part of development policy to competitiveness of whole productive sector.

3. Evidences from the case studies

Regional planning has mainly been based on previous knowledge of local features and economies. In order to improve effectiveness of FAS, Ministry of Agriculture funded a research about the needs of advice to comply with cross compliance. This research provides a survey to collect information among farmers and experts in specific case studies which has been chosen both on regional and sectorial criteria. Even if the project has not been ended, some evidences from survey are already available.

Project concerns all the cross compliance matters, but this paper focuses only on SMRs especially affecting livestock, namely Nitrates directive, identification of animals, notification of animal disease, animal health and welfare and traceability in animal productions.

Because of differences in natural resources, climatic conditions and general economic situations, in Italy agriculture shows large differences according to regional context. The interviewed were made in three regions (Piemonte, Veneto and Arborea district in Sardegna) in order to take in account different livestock specialization and farm organization as well as different socio-economical and political context.

Regional differences can also affect farmers sensitivity as well as public opinion. In fact, in Piemonte farmers seem to be more aware of environmental sustainability issues than in Veneto and in Sardegna, where livestock is generally more intensive and reduction of cost seems to be farmers' priority.

However farmers' consciousness about the pollution capacity of their activity seems to be low. Most farmers declare that agriculture have always a positive impact on environment. As a consequence cross-compliance requirements are often seen as an useless bureaucratic heaviness.

At the same time farmers are not conscious of the wideness of the cross compliance content. In fact they spontaneously refer to nitrate directive, sometime to identification of animals rules, but they generally forget food safety rules, namely traceability of milk production and feed management.

Even if farmers' high concerns about Nitrate Directive could be explained by the difficulty to solve eventually non compliance with it, it does not seem understandable that other SMR don't worry farmers at all but the case that farmers are undervaluing other requirements.

In fact Nitrate Directive has been most debated because of its potential impact on intensive livestock farming (CRPA, 2006), but identification of cattle is the most detected instances of non compliance in the European Union (European Commission, 2007).

All in all, the most important evidence in the interviews to farmers is that they don't have an overall perspective of cross compliance as a mean to qualify public support to the European citizens eyes. In fact, at the best farmers know cross compliance as a whole of requirements, but they don't understand the general aim of the introduction of cross compliances. They try to comply with these rules, because they are asked to do so and because they are suggested by professional and producers' associations, but they are not aware that cross compliance belongs to a re-qualification process which is happening.

4. Conclusions

In Italy, the importance of nitrate directive constrains the other requirements in the cross compliance.

Because of an objective condition, there is a substantial agreement between farmers concerns and political priorities in rural development plans.

Advisory system could widen farmers' consciousness about environmental impact of agriculture as well as about the changes in the general political perspective, which more and more wants to take in account what "society at large" expects from farmers. That is "Public expenditure must yield something in return – whether it is food quality, the preservation of the environment and animal welfare, landscapes, cultural heritage, or enhancing social balance and equity" (European Commission, 2002).

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NETWORKS WITH FREE ACTORS

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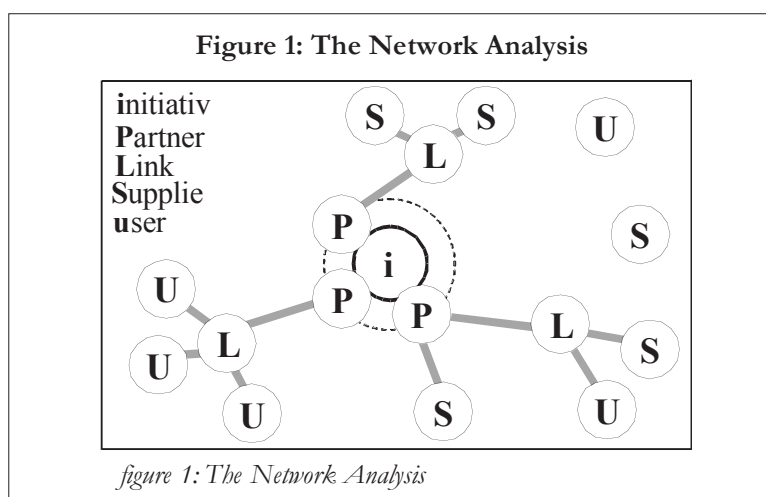
Keywords: Knowledge generation, change agents.

1. The FAN approach offers a new perspective

Network approaches are different

The networks we refer to are centred around initiatives: people who take action to get things done by involving others. This is not the same as networking in the sense of collecting calling cards from interesting people. It requires actors who take the freedom to do whatever appears to be necessary for the network to make progress.

For innovative processes it is important to connect entrepreneurial stakeholders with knowledge workers from advisory services, research and education. Knowledge transfer and knowledge exchange evolve into knowledge co-creation.



New tools are required

Most programmes for funding knowledge activities require well defined plans with SMART formulated targets, LOG-frames and accountable results. If various stakeholders are to be involved in such an activity, they should have agreed on targets and task division before the assistance can start. This is a serious problem, because usually it is a lot of work to create sufficient awareness and trust to reach that point of agreement, and assistance is often badly needed in those stages. For this reason, too many good initiatives never reach that point. Furthermore, once activities have started, targets often shift along the way: throughout the process actors discover what they really want and what is feasible. Network processes are like a discovery tour: surprises are hard to plan for beforehand. This is alright, otherwise nothing new can be discovered. What can be done to create trust between stakeholders in a network, and between a network and its financiers without strangulating project formats and evaluation schemes?

Toolbox of the FAN approach

A prefixed route description does not help in a discovery tour. Instead, tools are needed that help to recognise where a network appears to be going and what interventions might be useful, according to the situation. Tools have been collected and developed for different aspects of network dynamics. In the following section, each tool is briefly described.

2. The Network Analysis

In the Network Analysis (Poorthuis and Bijl 2006) (figure 1) essential actors are identified and different roles are being distinguished in which they are to be connected to an initiative. The core idea behind this tool is that the composition of the network should be a function of what is required for developing an initiative. It leads to priorities in connections to work on. Starting point of this tool is that an individual or group wants to achieve something. Here, the approach deviates from networks of people who just exchange experiences and calling cards. The network analysis is made by, or with, the actors who have the ambition to realise the initiative. The initiative should be sharply formulated and is put in the middle of the scheme. Then all actors and elements which could be relevant for the initiative are drawn in a wide circle around it. The next step is to identify different roles of actors:

- users are the ones who are supposed to benefit and give meaning to the initiative (e.g. target groups);
- suppliers are needed for something they offer (e.g. expertise, funds, inputs, etc.);
- links are actors that make the connection between the initiative and actors in the outer circle;
- partners are actors who take responsibility. If the initiator steps out, they will carry it further.

Often suppliers are at the same time users, e.g. a funding agency can use the success of the operation for its own track record. Still it is useful to distinguish what kind of transaction is expected of the connections that are to be maintained. The linkage function is of special importance. It is impossible to link with all actors or elements in the outer circle without having actors that can connect the inner circle to the outer one. But links don't need to be as heavily involved as partners. By drawing the picture, network participants become conscious of the strength and weaknesses of the network, which leads to an agenda for action concerning connections to be improved. There is an important difference with the more common stakeholder analysis. Where a stakeholder analysis starts with existing power relationships between institutions, the entry point for the Network Analysis is the content that can inspire people. When power relationships between institutions are taken as a given fact, it ignores the fact that within an organisation there might be people taking different positions in the issue. The Network Analysis allows for more refined strategies that could include building up informal relationships with people who are sensitive to the initiative.

3. The Spiral of Innovations

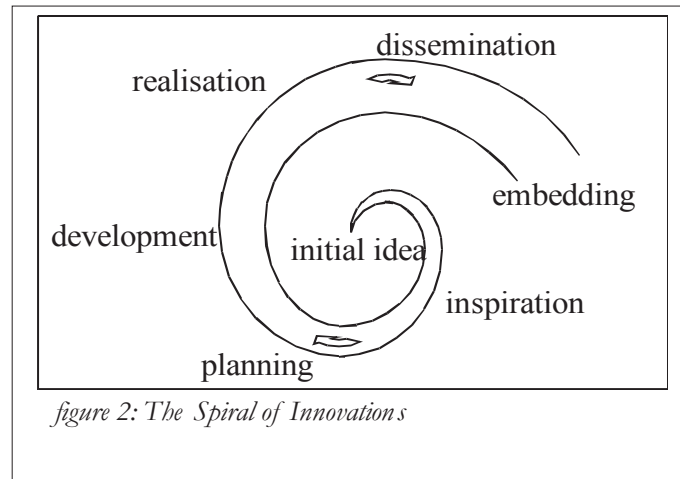
The Spiral of Innovations (Wielinga and Zaalmink, 2008) (figure 2) helps to identify the actual stage of development of an initiative.

Every stage calls for different types of activities, and different actors to connect with. It leads to priorities of activities to work on.

The model distinguishes seven stages:

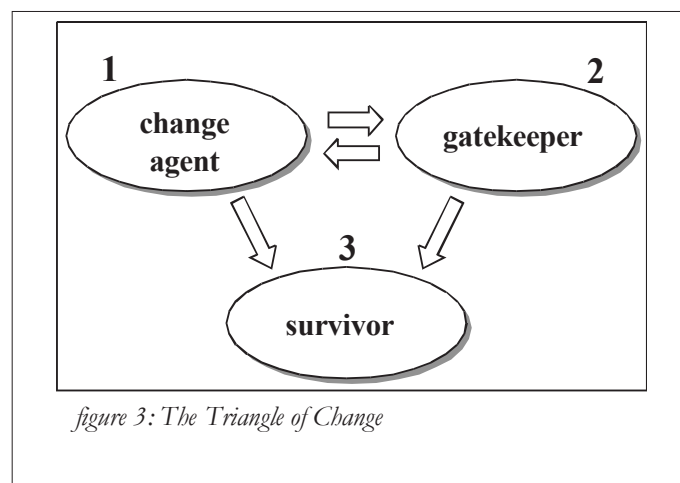
[1] Initial idea. Any initiative starts with someone having an idea which develops into an ambition. External contacts, as well as a sense of urgency, increase the occurrence of new initial ideas.

[2] Inspiration. Once the initiator starts to communicate about the idea, others might be inspired and join in, and a network of change agents will grow. Energy is generated by sharing ambitions.



[3] Planning. When the network starts thinking how the ambition could be materialised, the planning stage has started. Activities, task division and investments are being discussed. Then network should make connection to those who can enable the next step in developing the initiative: managers allowing for investment in time, funding agencies, etc.. Essentially, the planning stage creates space for experimenting.

[4] Development. This space is used to mobilise expertise for developing the initiative into a practice that works. This is the stage of experimenting, gathering information about best practices, and feasibility studies. At the end of this stage, the initiative has evolved into a practice or proposal for implementation.



[5] Realisation. When the new practice or project outgrows its experimental stage, it interferes with existing structures and relationships where other actors have to give way. This is a stage of negotiations and position game that usually requires different skills as compared to the previous stages. It helps if representatives from major stakeholders were already involved in the process before the realisation stage.

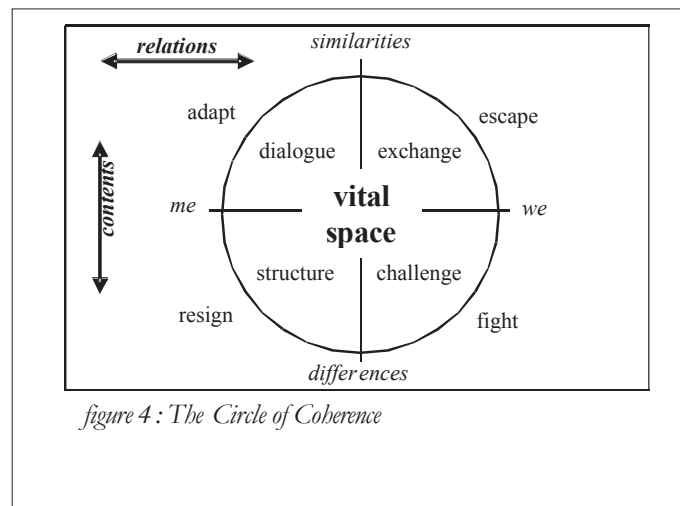
[6] Dissemination. When implementation is successful, the innovation will spread to others. Often this is an autonomous process, as Rogers (1962) already stated in his famous adoption curve, but many critics showed that the trickle down effect does not always runs as smoothly as was supposed (e.g. Rölöing 1985). If the network has an interest in adoption by many, efforts can be made. The network could also wish to profit from its competitive advantage.

[7] Embedding. When the initiative has reached the status of an innovation, defined as a new practice that is generally accepted, the structure will incorporate it in its normal routines. It could lead to new contracts, changes in task division, etc..

The Spiral of Innovation describes a natural process: it is not meant as a planning tool. It can help to anticipate to what can be expected, but surprises should be accommodated as well. Innovation is not a linear process. For example, the development stage could end up in a dead end track, forcing the network to return to the inspiration stage and redefine the ambition. The tool also identifies specific barriers that are encountered in each stage, and offers suggestions for appropriate action.

4. The Triangle of Change

The Triangle of Change helps to assess the order in which stakeholders should be involved. The model distinguishes three positions people can take:



- Change agents are the people who share an ambition: they wish to create movement. Usually they are connected by informal contacts. There is energy and creativity that might be slightly chaotic as well.
- Gatekeepers are concerned with the structure, which requires long term visions, stability and risk management. Everyone holding a responsible position in an organisation has a function as gatekeeper, and should evaluate new ideas on its consequences for the structure. Not every new idea is an improvement. Gatekeepers have ambitions too. They can open certain doors and keep others closed. However, if no change agents grasp the opportunity to make use of it, nothing will move.
- Survivors are primarily concerned with their own survival. They are not prepared to take risks.

From the perspective of the change agents, it is important first to generate sufficient enthusiasm and energy, in order to acquire a position for dialogue with the gatekeepers. If they go there too early, most probably they will be ignored, or hear arguments why their proposals are not feasible. It has no use to spend energy on survivors, since they will only go along when they feel safe. This safety must be provided by a joint effort of change agents and gatekeepers who can change the conditions. A problem is that most survivors will not expose themselves as such: they can act as gatekeepers or even as change agents if they think that is the best way to survive. Positions can shift over time, and all are valid: any normative judgements should be avoided. We all are change agent, gatekeeper or survivor sometimes, depending on time and subject. The importance of the tool is the sequence it

suggests for involving actors: first mobilise a network of likeminded change agents, then approach the gatekeepers for dialogue and creating space, and lastly communicate with the survivors about the consequences for them.

5. Circle of Coherence

The Circle of Coherence (Wielinga 2001; Wielinga and Zaalmink 2008) gives insight in interaction patterns in a network (figure 4). It is based on the metaphor of living networks: networks of people behave just as any living organism and can be healthy or sick. The difference is connection. If all components are connected, the whole can develop task division and synergy. Central in the model is “Vital Space”: a space where people can be curious and experiment with new ideas (vertical axis) as well as positions towards each other (horizontal axis). This space is essential for growth, but it requires trust. Trust cannot be manufactured, but it will grow when it is nurtured.

Four basic patterns within the circle feed trust: the balance between give and take (exchange) must be positive, and there should be challenge, structure and dialogue. Since it is a living system, these patterns keep balanced autonomously: the mechanisms to keep interaction healthy are ingrained. When connection gets distorted, interaction can deform into escalating patterns where people escape, fight each other, resign while complaining that the bad situation is the fault of others, or adapt so far that it leads to groupthink, suppressing any criticism. Such patterns do not correct themselves and require intervention. Interventions that work in one pattern might be counterproductive in another. For example: when people escape, an inspirator might change their minds showing advantages of participation they did not see before. This same inspirator makes things worse when people are fighting each other, since there are too many competing ideas already. They first need recognition for their ambitions. In each pattern the tool offers suggestions for “warm interventions”, influencing minds, and “cold interventions”, influencing positions.

6. Programme requirements

When the programme “Networks in Animal Husbandry” started to yield successes, the Ministry of Agriculture decided that the scientific experiment should be succeeded by a subsidy scheme for innovative networks in the livestock industry. However, the subsidy scheme had a difficult start in 2008, and repair actions were needed to prevent it from failing completely. After one year, an external bureau was asked to evaluate both programmes and look for the differences. The evaluations (Bartels 2009a, 2009b) concluded that in the experiment the threshold for acceptance of a network had been low. It was sufficient to have an innovative idea, and enthusiasm should be tangible. All selected networks had been visited personally before. The facilitator would assist the network with all steps that were required, including transforming the initiative into a feasible plan, building trust among the participants, and connecting them to actors who were needed for further developing the idea. For the subsidy scheme, the responsible agency applied its usual criteria for acceptance, making the threshold for networks much higher. Enthusiasm did not play any role in the selection because it could not be measured objectively. As a result, there was only a limited number of applicants, and the quality of the applications was poor. The evaluators recommended to lower the threshold for acceptance, and to offer assistance in earlier stages of the process in a network for innovation.

From the experience of the action research team that guided the experiment¹, we can add that the subsidy scheme overlooked a second essential factor as well. The facilitators in the experiment were embedded in a structure which offered training and peer consultation, allowing them to improve their skills and to encourage each other in difficult periods that always occur in network development. This guidance was absent in the subsidy scheme. In a repair action, facilitators with experience from the experiment were made available to

¹ The author was part of this team.

support facilitators in the subsidy scheme. Working with the network tools in the FAN approach requires training and reflection on actual experiences on a regular basis. A third important factor was communication. An interactive website was introduced in the experiment, providing two-weekly updates and newsflashes from the networks. The number of subscribers rose quickly over 6.000. This website was maintained and is still functioning. As a fourth factor, monitoring and evaluation should be mentioned. Since the outcome of network processes cannot be predicted and formulated in SMART formulated targets, new ways of monitoring had to be developed for building trust: among the participants as well as between the network and the funding agency. To this end, the Learning History methodology (Kleiner and Roth, 1997) was adapted into a tool for self evaluation, analysis and reporting. Instead of comparing achievements to a predefined yardstick, a way of storytelling was introduced, focussing on moments that had been critical according to the network participants.

7. Conclusions

The FAN approach offers tools for networkers and facilitators, that enable them to follow the flow and to intervene when blockages occur. This approach deviates from the more common planning and control cycle, based on targets and calculable results. The experiment with 120 networks in animal husbandry has shown that people can work along these lines and that it generates considerable enthusiasm as well as tangible results. Or, as one facilitator stated: “If there is energy, everything is possible!” (Booij and Noorduyn 2007).

Key element of the approach is the “Free Actor” who feels committed to an initiative and works to create space for its development. This can be an initiator, an active networker, but also a facilitator who performs this role on a temporary basis. Missions, goals and targets as set at higher levels are not seen as assignments to fulfil, but as opportunities for initiatives that coincide. Requirements for using the FAN approach in programmes for innovation and development are [a] low thresholds for application of networks, [b] an embedding structure for free actors, providing proper training and peer consultation, and offering assistance in early stages of network development, [c] continuous communication about progress and actualities, and [d] an adapted way of monitoring and evaluation.

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THEORY AND PRACTICE OF AN AGRICULTURAL EXTENSION SYSTEM AN EXPERIENCE IN AN INTEGRATED RURAL DEVELOPMENT PROJECT

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Keywords: T&V System, rural development project, Turkey.

1. Introduction

Theory is something but the practice is something else. They are not always in harmony and agreement. The history of the world is full of very important and sad stories because of these disharmonies and disagreements. For example, all the theories of almost all the ideological systems have promised peace and prosperity for the people. But, the practices have told us different stories. In fact, we ourselves have witnessed many such stories in our own life times.

Similar consequences have occurred in some technical matters too. The use of alternative Extension systems is such a technical matter. Extension systems are the means to achieve the objectives of the Extension Services. Sometimes, some differences between the theory and practice of such systems have been observed. Such was the case in Erzurum Rural Development Project (ERDP).

2. The Training and Visit (T&V) System

The Training and Visit System was developed by Daniel Benor and James Q. Harrison of the World Bank in early seventies to be implemented in rural development projects particularly in developing countries that demand financial aid from the Word Bank for rural development projects (Daniel Benor, et al. 1977). The basic Extension technique of this system is based on a systematic program of training of the village extension workers and regular visits to farmers by these workers.

This system in theory makes it possible to provide an intensive training for the Extension workers on the subjects directly related to the problems the farmers face on a day to day basis. It also provides the farmers with the opportunity to receive consultancy on a regular basis such as once a week or fortnight on a fixed schedule. The fixed schedule also makes it possible for the authorities to supervise the operations closely.

The T&V system organization is based on the number of families an Extension worker can cover in a certain length of time. This number of course varies considerably from place to place depending on several factors such as the density of population, availability of transportation, diversity and intensity of crops. Once the number of farm families for one Extension worker is determined, the total number for a given project area can easily be calculated. The ratio of Extension workers to farm families has been suggested to be between 300 and 1200 depending on the factors mentioned above.

The T&V system proposes a single line of technical support and administrative control. According to the system, six to eight Extension workers are guided, trained and supervised by one Extension Officer. Similarly, six to eight Extension officers are guided and supervised by one subdivisional Extension officer who is supported by a team of Subject Matter Specialists. Again, up to eight subdivisional Extension officers are supervised by a district Extension officer who is also supported by a team of subject matter specialists. In Erzurum Rural Development Project, in line with the existing administrative division, provincial Extension officer corresponds to district Extension officer indicated in the system.

The Training and Visit System was developed in reaction to the problems faced in traditional Extension system. These problems were identified as follows (Daniel Benor, et al. 1977, p.6):

- a. Lack of a single line of technical support and administrative control; frequently an extension officer must report to more than one supervisor.
- b. Multiple roles assigned to a field level Extension Worker; his or her tasks often include, among other things, procurement and collection of statistics.
- c. Large coverage but inadequate mobility; Extension Workers are often assigned to cover too many farm families, at times more than 2000.
- d. Lack of in-service training; most training efforts are concentrated on pre-service training which is often too theoretical to be useful in practice.
- e. Weak ties with research; a strong tie is required between Extension and Research institutions to ensure effectiveness for both Extension and Research.
- f. Low status of Extension workers; they usually have low pay, low status and low morale. On the other hand, lack of effectiveness and visible success make the farmers lose their respect for them which by itself hinders effectiveness.

Several more items may be added to the list of the problems related to the traditional Extension system. The diagnosis is correct. These problems are real. But the remedy must address to the core of the problem to provide solutions to these problems.

3. Erzurum Integrated Rural Development Project

The idea of integrated approach to rural development was first discussed and found to be useful by the authorities in early seventies in Turkey. This approach was implemented for the first time in Corum - Cankiri Integrated Rural Development Project between 1976 and 1981. Until then, one sector approach had been adopted for development projects. Only one agency used to be responsible for each such project. In the integrated approach, different government agencies are responsible for different service components. Seven such projects have been implemented in Turkey so far.

ERDP was the second project of its kind to be implemented in the Country. The budget of the project was 137 million US Dollars. 40 million Dollars of the amount was provided by the World Bank. FAO provided 20 million and the rest was given by the Agricultural Bank of Turkey. There were three components to the project, namely, infrastructure, credit and technical or extension service. 26.7 million Dollars was allocated for Extension, 34.5 million for credit and 68.1 million for infrastructure components.

ERDP was implemented in 394 of 1050 villages of Erzurum Province. Each village, on the average, has about 50 farm families. 59 village centers were established for the Extension workers who were called Extension technicians in ERDP. Then it can be calculated that the ratio of one Extension worker to farm families was 1 to 333 ($59/394 \times 50 = 1/333$). If implemented properly, this ratio would make it possible to conduct an effective operation. But as was mentioned above, the theory is something but the practice is something else.

The objectives of ERDP can be summarized as follows (World Bank, 1982, c1):

1. To provide infrastructure such as roads, irrigation and electricity,
2. To provide supervised credit to farmers,
3. To strengthen agricultural and livestock services,
4. To facilitate training for both farmers and the Staff,

5. To introduce winter wheat,
6. To intensify forage production,
7. To improve grazing land,
8. To control animal diseases,
9. To promote mixed farming practices appropriate to local conditions.

As can be seen from the list of objectives, most of the activities are related to technical service component, in other words to Extension Service.

Because of the multi-sectoral nature of the project, a special coordinating office was established to be responsible for the execution of the project activities. The General Coordinator was to report to the Governor directly and use the authority of the Governor regarding the matters related to the project.

The implementation stage of ERDP started in 1981 and lasted until 1989. Several yearly programs and evaluation reports were prepared during the implementation period. At the end of the implementation, a meeting for final evaluation was held with the participation of the representatives of all parties. This author attended that meeting as the representative of Ataturk University. Unfortunately, the final evaluation report was not made public, it was generally agreed that infrastructure component was a complete success; credit component was a half success whereas the technical component was a failure. The analysis of infrastructure and credit components is beyond the scope of this paper.

As was mentioned above the extension component was almost a total failure. For instance, Lancer type of winter wheat would have been introduced to the project area and certified Lancer seed would have been sown in 60.000 decar land. But introduction of Lancer Wheat was limited to only a few demonstration plots. Similar consequences have occurred with regard to certified potato seed production. The major problem regarding the failure of the Extension service can best be seen in the fact that 59 village group centers were planned and constructed, but only a few of them became operational due to the problems related to human resources namely, inadequate number of qualified Extension workers.

4. The Core of the Problem

The core of the problem is not related to how the Training and Visit System is designed, but it is related to how it is practiced. Even a perfect system can be spoiled and result in a perfect failure under a bad management. The Training and Visit System was meant to be a powerful communication tool to enable a large number of farmers to be reached quickly and regularly. The system has worked in some places and projects but did not work in others. This clearly shows that the core of the problem is related to how it is practiced. In other words, the name of the core problem is mismanagement.

5. The Theory and Practice

The designers of T&V system indicate that the system has worked well in Seyhan Project in Turkey and in West Bengal Project in India (Daniel Benor, et al. 1977, pp.3, 41). They indicate that “farmers increased cotton yields from 1.7 tons to over 3 tons per hectare in three years” in Seyhan Project. Similarly, in West Bengal, about half a million farmers were reached fortnightly and many more farmers were affected indirectly. In fact, the President of the World Bank at that time Mr. Robert S. McNamara praised the system and commended its successes saying that “the system has been introduced in projects assisted by the World Bank in a number of Counties with considerable success and has aroused wide interest inside and outside the Bank”.

The theory of the T&V system shows that it has a significant potential in both training the Village Extension Workers and the farmers. A new technique can be taught to both trainers and the farmers in a relatively short time. But the system has failed in the case of ERDP while it had been practiced successfully in Seyhan Project in Turkey.

When we try to identify the major problems that hindered successful implementation of T&V system in ERDP, three problems stand out. They are; understaffing, under training and under motivation. They are all related to “human resources” or “human capital”. It should, of course, be taken into consideration that, it is very difficult to identify the role of some factors in a situation where many other factors interact to bring about a consequence. But again, there are situations where some factors stand out clearly as the determining reasons for some consequences as can be seen in this case. The deficiency in human resources is a result of mismanagement that affected the implementation of T&V system in ERDP. A good management practice could have solved the problem without much difficulty.

It is one of the major principles of Project Management that the means must be appropriate for the ends. In other words, the resources must commensurate with the objectives. On the other hand “institutional capability” is the first criterion to be taken into consideration in evaluating the project documents in most cases. For example in EU grant programs. The Provincial Directorate of Agriculture of Erzurum had not had the number of Extension workers necessary to staff the 59 village group Extension centers. Available personnel were not well trained and motivated. In this case, the thing that should have been done is clear. Enough number of personnel should have been assigned, all of them should have been trained and special incentives should have been provided to create motivation. All of these could have happened. Necessary measures could have been taken at the initial stages of the project to prevent the failures of the Extension component of ERDP.

This conclusion brings us back to square one, to the drawing board. What went wrong during the planning stage? The answer lies within the program planning principles, or Project Cycle Management (PCM) principles. According to the PCM principles, a project must be based on the detailed analyses of situation, problem, partner, strategy and objectives. In the case of ERDP, situation and partner analyses were not done properly. Eastern Anatolia is known to be a “region of deprivation” not a “region of plenty” as Seyhan Region is. Civil servants try not to be appointed there. There have always been problems with the number and quality of government employees in this region. Special incentives should be provided for this region to attract people in required numbers and qualifications so that special projects can be successful. This is because; special projects require special talents and more intensive work. ERDP had the resources to provide such incentives. But this aspect was ignored.

This author had been involved in ERDP from the beginning to the end as the liaison officer between the Project office and Ataturk University, and observed first hand that the most important problems that hindered the success of the Extension component of the project were the problems related to “human capital” in terms of quantity and quality. But he was not allowed to participate in the decision making process.

The number of Extension workers assigned for the project was far below the number necessary to carry out the task successfully. Therefore, 59 village group centers were not staffed properly. In fact only a few of them became operational. On the other hand, motivation and talents of those who were assigned were far below the required level. This low level of number, motivation and training of the Extension workers inevitably led to a failure of the Extension component of ERDP. This experience, once again showed that special measures should be taken to tackle special problems that may arise in a given case.

6. Conclusions and Recommendations

1. Theory is something but practice is something else. Theoretical framework does not always work as expected in practice in all cases. This is a valid statement for the field of Agricultural Extension and Rural Development. A system that has been successful in one place may not be so in another.
2. T&V Extension System has a significant potential in improving the quality of life in rural areas. But, it should be kept in mind that this system requires a certain number of Extension workers and qualifications so that it can produce expected results. Therefore, the management should make it sure that there will be appropriate number of trained and motivated people to work for the project.
3. Erzurum Integrated Rural Development Project was an important chance to change the fate of rural people in the project area. But, unfortunately this chance was missed. The lessons should be drawn from this experience and those lessons should be kept in mind in future projects.
4. The core of the problem for the failure of T&V system is not related to how the system is designed, but it is related to how it is practiced.
5. The principles of “Project Cycle Management” should be taken into consideration in Extension projects and in the meanwhile, the assumptions or the external factors that may hinder the success of a project should be identified and necessary measures should be taken in time to eliminate the obstacles on the way of the realization of the objectives.
6. Human capital is the most important factor for the success of projects involving education or training. Special Extension projects require talented, well trained and highly motivated Extension workers. Providing required human resources should be given due attention at the initial stages of project process. Project implementation stage should not be started before the required Extension workers have been assigned.

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ADOPTION OF SPRINKLER IRRIGATION TECHNOLOGY IN ARDABIL PROVINCE OF IRAN

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Keywords: Irrigation, adoption, Iran.

1. Introduction

Iran is located in arid and semi-arid regions of the world with average annual precipitation of 250 mm. In these regions the main constraint for agricultural development is water shortage (Kardavani, 1996). Despite the water shortage, there is no appropriate use of water in agricultural sector. Irrigation is usually carried out through surface methods with the maximum efficiency not more than 30-40 percent (Kohansal and Rafiei, 2008). Improved water use efficiency in agriculture is advocated to reduce water use among existing users and to increase the supply available for new users (Hayati and Lari, 2000; Bjornlund et al., 2008).

Irrigation technology has the potential to substantially increase water-use efficiency in crop production in arid and semi-arid regions of Iran (Karami 2006). Moreover due to the increased complexity and variation in irrigation technologies, farmers face the difficult task of making a rational decision when adopting new irrigation methods. Sprinkler irrigation because of its high efficiency in water use, timely providing plant's water requirement and minimizing water wasting among other methods has found special attention for improving irrigation water efficiency. Although in recent years government has been trying to extend this technology, however because of technocratic view and not having holistic approach, like considering farmers' behavioral features, adoption of this technology has encountered with several problems (Karami, 2006).

Previous studies indicated that different factors affect technology adoption. For example, weak knowledge and understanding of farmers, the amount of water that is needed, yield, slope and quality of soil, and farm scale product characteristics, fiscal situation, resources conditions (energy, water and soil), farmers characteristics (education, experience, managerial ability), ownership structure, farm costs, farm size and related institutions influence non adoption of irrigation technology (Whittlesey, 2003; Marques et al. 2005; Blanke et al 2007; Bjornlund et al. 2008).

By considering previous studies (i.e. Jafari and Torkamani 1998; Hayati and Lari 2000; Karbasi 2001, Jahannama 2001, Karami 2006) from the different parts of Iran, different factors affect decision of adopters, abandoners and non adaptors of sprinkler irrigation. None of the conducted studies was in Ardabil province and there is no knowledge about the adoption of sprinkler systems in this province. This study aimed to determine factors influencing adopters, abandoners and non adaptors of the sprinkler irrigation among farmers of Ardabil province.

2. Materials and Methods

This study was conducted on 21 villages from 9 townships of Ardabil province (37° 04' to 39° 42' N. & 47° 02' to 48° 55' E.) located in north-west of Iran. Descriptive survey design for data collection was adopted. The population was 600 farmers, trained to apply sprinkler irrigation systems. The samples included 160 farmers that were determined using Cochran (1977), formula. These farmers were divided into three groups: 1) adopters, who had been using the systems in their farms during undertaken of the research (20 farmers); 2) abandoners, who rejected systems after adoption, they removed systems' equipments from their farms after installation (60 farmers); and 3) non adopters, who did not have willingness to apply and use of systems after initial request (80 farmers). A questionnaire

was validated by a panel of experts. Initially, a pilot study was conducted in two villages with collaboration of 30 farmers and the alpha value was 0.86. Data analyzed using SPSS v. 11.5.

3. Results and discussion

Demographic results of the study showed that respondents' mean age and farming experiences were 50.7 and 35.1 years. Their average household number was 8.6 and for land holding size it was 21.6 ha.. In the case of access to the agricultural information centers (Table 1), there was no significant difference among the 3 groups of respondents. Regarding farmers' age, the majority of them were aged. Also, for farming experiences the difference was significant.

Table 1: ANOVA test to compare three groups of the respondents

Classifying variable	F	P
Distance from extension	0.058	0.94
Distance from research	1.439	0.24
Distance agric.manag.	0.661	0.52
age	1.013	0.34
Farming experience	4.660	0.01**
Household number	3.357	0.04*
Farm land size	5.505	0.01*
Irrigated farm area	0.851	0.43
Rain-fed farm area	4.383	0.01**
Land fragments	6.223	0.01*

Note: *: $F < 0.05$ **: $F < 0.01$

Most of modern agricultural technologies are labor saving, which decrease farm labor requirement. There was significant difference among the three groups. Adopters had smaller households. Therefore sprinkler irrigation could solve the limitation of farming labor requirements and increase their productivity. Moreover, this technology could decrease the opportunity costs. Regarding education, farmers were classified into three groups of illiterate, low literate and literate. In agreement with some studies (Karbasi, 2001; Bjornlund et al., 2008), the result of χ^2 test showed that education has significant effect on adoption behavior ($p = 0.01$) therefore, adopters were more educated than two other groups. Land ownership was not a determinant factor in this case

In order to study the relationships between farmers' awareness of irrigation methods and their adoption behavior, farmers were asked to list at least one advantage and drawback for five kinds of irrigation (including sprinkler). The result of F-test showed that adopters were significantly more informed about it. These results confirmed previous studies (Blanke et al., 2007; Jahannama, 2000) which revealed the positive effect of awareness on technology adoption.

To study the relationships between access to information sources and adoption behavior, the respondents were asked about access to seven information sources, namely: demonstrative fields, agro-industrial corporation farms, extension publications on irrigation, studying irrigation books, radio and TV's agricultural programs, local agricultural and extension experts. As Table 2 shows, there were no significant differences among groups regarding the use of radio and TV's agricultural programs, thus no effects of them in the adoption of irrigation technology. The same results were achieved among the three groups for access to the information sources and agricultural and extension experts. According to Rogers' (2003) categorization, it can be resulted that extension agents played an active role in the first stages of technology diffusion, especially in information and persuasion steps.

Because of easy and frequent contact with extension agents, farmers had been encouraged to adopt sprinkler systems, however in the next step (complete adoption and use of technology) the advantages of new technology were not demonstrated to the farmers. Lack of significant difference among respondents indicates that there were other and more effective factors. This result confirmed the findings of Morrison (2005) for lack of demonstrable benefits and Blanke et al. (2007) for lack of incentives. Extension written materials (Table 2) were one of them.

As these materials were available for most farmers, it results that self endeavor/competency was an important factor which motivated adopters to continue the use of technology. These findings are confirmed by some studies such as Jahannama (2001); and Jafari and Torkamani (1998).

Table 2: Cruskal-Wallis H tests to compare groups for access to information sources.

	Demonst. fields	Agro-indust. farms	Ext. public.	Irrig. books	Radio agric. Prog.	T.V. agric. Prog.	Agric.Ext. experts
χ^2	3.25	2.45	10.96	16.21	1.18	0.03	0.2
P	0.2	0.290	0.04**	0.001**	0.56	0.99	0.91

Note. *: $r < 0.05$ **: $r < 0.01$

Farmers' positive attitude toward optimum use of water is an important factor leading farmers to use water saving technologies. The results showed that all of the respondents had positive attitudes toward optimum use of water in agriculture and no significant differences exist among them. Thus, it can be concluded the problem of non adoption or discontinuance does not related to farmers' attitudes.

By considering households' landholding size, results showed that significant differences exist among respondents ($p = 0.005$), and adopters had more farm land than the two other groups. This finding is supported by previous studies, which reported farmers with greater farm sizes, were more interested to adopt the sprinkler irrigation systems (Stephenson 2003). Some studies in Iran have also pointed out that the farm size is one of the important factors in adopting sprinkler systems (Hayati and Lari, 2000), as well as smallness and dispersion of land fragments is a barrier to adoption of the systems (Jafari and Torkamani, 1998; Karbasi, 2001).

As Caswell and Zilberman (1985) reported, one of the main reasons of the application of sprinkler systems is to save water as well as to convert rain-fed farming to the irrigated one. Regarding rain fed farming, adopters had significantly ($F = 4.383$, $P = 0.014$) larger farms in comparison with the two other groups. The majority of respondents (82.7%) reported that water shortage was the main reason for dry land farming. Also, the number of land parcels of adopters was more than the other two groups and for adopters it was less dispersed. Similar results were reported by Bjornlund et al. (2008); Whittlesey (2003); English et al. (2002). As results show, there is no reason for saving water using the technology but rather the technology has increased water efficiency and farmers tended to irrigate more farmlands and thereby increased water application.

Regarding distance of farms from water sources, adopters' farms were located near to water sources and their parcels were located near each other. However, all of them were confronted with the problem of water limitation.

Some researchers believe that variables, such as slope of land and quality of soil are related to adoption behavior. In this case it found no significant differences among farmers. Although lands with low quality faced problems later however, it can be resulted that the quality of soil was not a determinant factor in adopting sprinkler systems.

Finally, farmers were asked to identify the reasons for adoption and non- adoption of the technology. The main reasons of respondents for adopting sprinkler systems are water limitation and need to economic use of irrigation water; to reduce production cost and to increase planted area; to change rain-fed lands into irrigated ones; to increase crop yield and quality; to increase soil fertility using controlled irrigation.

Main reasons of abandoners of sprinkler systems are the problem of pipes and instruments' replacement in the field and among parcels; windiness of the area and the problem of runoff caused by sprinklers; inappropriateness of introduced systems with agro- ecological conditions; low quality of systems' equipments; high cost of replacement and repairing pieces; lack of skilled representatives of corporations for designing and setting up of systems in the fields; irresponsibility of installer corporations for services after selling and installing; quota system in supplying enough irrigation water.

4. Conclusions

In conclusion, to improve the acceptance of new technologies as well as sprinkler systems following recommendations are presented. Based on the low literacy of majority of farmers and its' relationship with adoption behavior, it is essential to encourage young and literate people in agricultural sector; this purpose can be achieved by creating suitable motivations and conditions. Moreover, extending special TV and radio programs in suitable times; training local agricultural experts and extension agents before training farmers; considering agro-ecological conditions for selecting sprinkler systems and conducting adaptive researches to fit new irrigation technologies with farms situations before transferring; designing and implementing training and educational courses for farmers; creating suitable conditions for land integration as a basic principle for applying sprinkler systems; field trips and visiting from successful farms with operating sprinkler systems; enacting regulations to oblige installer corporations to be responsible for appropriateness of installed irrigation systems and for delivering services after selling.

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PROFITABILITY OF THE PRODUCTIVE FACTORS GRANTED BY THE FARMER

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Keywords: Farm management, farm accounting data network, CAP implementation.

1. Introduction

Over the last few years, the focus of consulting services moved from themes closely linked to the production techniques aimed at reducing costs and increasing unit yields to others linked to the farm economic management, respect of agronomic practices compatible with the environment, and rural development. The farmer, in fact, had to measure himself to a greater extent with more and more stringent market logics and this led to a search for new productive attitudes and a higher level of farm efficiency, aimed at guaranteeing suitable and proper remunerations to the productive factors used, and assuring their competitiveness. The Community agricultural policy, starting from the so-called Fishler reform, has in practice progressively reduced the protection to companies by exposing them more to problems typical of economic sustainability and competitiveness.

This justifies a new attention towards the adjustment of economic analysis methods for farms and towards advice to management. Within this context, INEA has first created a study group and later on started a collaboration with the Centre for Training in Economics and Politics of Rural Development of Portici, with the main aim of giving the right value to the considerable knowledge of the structural and economic farm data obtained from the Farm Accountancy Data Network (FADN).

2. Methodology

One of the tools to assess the managerial competitiveness of companies is measuring profitability, meant as the parameter able to bring out, through the analysis of its components, the possible inefficiencies and/or strengths.

The earliest applications of such criteria concerned the analyses of production costs, starting from the surveys on single productive processes (Tosco, 2006) or on the accounts of specialised farms (Pomarici, Rocco, Santangelo, Tosco, 2006) and the overall profitability of recorded farms (FADN Basilicata 2003 and 2006). Such an approach is based on the assessment of the farm's Net Income (NI) and the unit remunerations of the factors conferred by the farmer. In order to make this assessment, we defined a Reference Net Income (RNI) as the whole of remunerations of conferred factors figured by using the concept of opportunity cost.

The Real Net Income of each farm is calculated, within the FADN, as the difference between the value of the Saleable Gross Production (SGP) and the sum of Fixed Costs (FC) and Variable Costs (VC).

The Reference Net Income is calculated in a standard way by referring to the context in which the analysed farms are included, on the basis of values taken from the Reference Unit Remunerations (RUR). Then the first step was the identification of the Reference Unit Remunerations of productive factors conferred by the farmers, namely by labour, of the land capital and working capital, assessed by means of the criterion of cost opportunity.

Within the experience had with FADN Basilicata, as far as the remuneration of family labour (RUR_{lav}) is concerned, we took under consideration the data coming from the “National Collective Contract” in force of agricultural and nursery-gardening workers, relating to the workers employed permanently with the highest salaries. It is presumable, in fact, that a farmer and his family have higher levels of responsibility and a highly qualified job in the farm.

The Unit remuneration rate of the land capital (RUR_capf) takes into consideration the rents applied in the farms which are FADN members. In order to avoid distortions linked to contingent factors, the datum must be calculated as the ratio between the values of the rented land capital and those of the rent concerning the last three years. The remuneration of the working capital (RUR_cap) was determined by considering the reference rates for the national debt of the accounting year considered.

On the basis of the actual uses of capitals present in the single farms, we were able to measure the Reference Net Income of each farm¹ of the FADN sample analysed. The same procedure can be applied to a homogeneous group of farms, thus calculating an Average Net Income (ANI). The measurement of the profitability of the factors used can be expressed through the profitability index (PI), given by the ratio between the farm's actual net income (NI) and the reference net income (RNI), which assesses the gap level between the actual and expected remunerations. In order to classify farms, we identified 4 classes of profitability:

Tab.1 - Profitability classes

Code	Value	Description
IR1	< 0,33	Low profitability
IR2	>0,33 e < 0,66	Medium-low profitability
IR3	>0,66 e < 1	Medium-high profitability
IR4	>1	High profitability

The assessment of the profitability of productive factors finds its applications on different levels of aggregation, selected on the basis of the variables we want to analyse. The comparison between the farms' data thus assumes a value of comparison within homogeneous groups. The aggregation variables used in the study were:

- the size class expressed both in physical, thus referred to the classes of agricultural area used, and economic terms as for the classes of Economic Size Unit (ESU)²;
- the productive trend, expressed through the classification on the basis of the Type of Farming (TF)³;

¹ $RTR_{lav} = RUR_{lav} * LAVFAM$
 $RTR_{capf} = RUR_{capf} * CAPFOND$
 $RTR_{cap} = RUR_{cap} * CAPESE$
 $RNR = RTR_{lav} + RTR_{capf} + RTR_{cap}$

Where:

RUR_{lav} = Reference remuneration per working hour
 RUR_{capf} = Rate of reference remuneration of land capital
 RUR_{cap} = Rate of reference remuneration of working capital
 RTR_{lav} = Total reference remuneration of labour
 RTR_{capf} = Total reference remuneration of land capital
 RTR_{cap} = Total reference remuneration of working capital
 RNR = Corporate net reference income
 $LAVFAM$ = Total family labour employed (in hours)
 $CAPFOND$ = Land capital owned by the farmer
 $CAPESE$ = Working capital owned by the farmer

² Farm classification, according to Community criteria, is based on the determination of the economic weight of the productive activities present in the farm, and their combination. To this aim, we use the "Standard gross incomes" (SGI), which are economic parameters identified per single productive activity or groups of crops (for example hard wheat, corn, vegetables in open field, citrus fruit, etc.); they are calculated as the difference between the value of gross production and that of some specific costs. The gross income calculated like that for each productive activity is defined "Standard" since it is determined on a three-year average and with reference to the average productive situation of an area. The farm's economic size is given by the amount of the total SGI, obtained as the sum of the SGI of each productive activity present in the farm. It is expressed in Economic Size Units (ESU) and, for the period considered, each ESU corresponds to 1,200 Euro of SGI.

- altitude areas, differentiated by means of ISTAT classification.
- the management form.

3. Analyses outcomes

The explained methodology was used to analyse the data of the FADN farm sample of Basilicata for the years 2003 and 2006. The study on the profitability of factors was carried out by examining several aspects of both the farm management and the impact of public subsidies in agriculture, an extremely topical issue with relation to the CAP changes introduced by the so-called Fishler reform. The analysis concerned several stratifications, both economic and territorial, and was aimed at offering the surveying technicians of the Lucanian Agency of Development and Innovations in Agriculture (ALSIA) a tool for interpreting the economic results of recorded farms. We noticed, in fact, the need for supplying the farmers involved in the accounting survey with a technical assistance aimed at solving the problems linked with the technical and economic management.

3.1. Overall analysis on the profitability of factors

The distribution of Lucanian farms which were FADN members in 2006, per profitability class with reference to ESU classes, highlights substantial differences with relation to the two above-mentioned variables (Tab. 2).

Tab. 2. Farms per profitability class within the several ESU classes gross of subsidies

Profitability classes	Number of farms					Total nr. of farms
	4 – 8 ESU % on the total	8 – 16 ESU % on the total	16 – 40 ESU % on the total	40 – 100 ESU % on the total	>=100 ESU % on the total	
IR 1	74,6	56,3	25,0	13,0	0,0	325
IR 2	19,3	26,1	27,8	7,0	0,0	184
IR 3	6,1	13,4	21,3	17,4	0,0	132
IR 4	0,0	7,3	25,9	62,6	100,0	224
Total	100,0	100,0	100,0	100,0	100,0	865

The number of farms belonging to the first profitability class tends to decrease, as it is logic to expect, with the increase of Economic Size. In this group, which can be defined as marginal and gathers overall more than 37% of the sample, we find the worst remunerations of productive factors: one hour of family labour can be paid less than 3,00 Euro. It is clear that for such typologies of farms it is difficult to hypothesize interventions able to give them their competitiveness back since, probably, their structural facilities do not allow substantial modifications in the management and productive organization but, nonetheless, in a logic of sustainable development we should identify the suitable policies in order to make these farms continue to play their role of territory defence.

It is also interesting to notice that 26% of farms, belonging to the highest profitability class (IR4), is thus able to remunerate its productive factors beyond the Reference Unit Remunerations. These are farms with remarkable physical dimensions, since all the analyses carried out showed a strong correlation between the size and the profitability of the factors, mainly due to scale economies that medium and big farms are able to achieve in the

³ The TF of a farm is determined by calculating the economic size of each crop and each breeding of the farm, namely by multiplying the number of hectares cultivated or heads bred by the related Unit SGI referred to the region where the farm is. The size of farm's productive processes measured like that allows determining the different productive combinations and thus assigning the TF according to the Community type scheme. The EC typology includes 58 possible combinations.

employ of labour and capitals. The UAA analysis per classes shows, in fact, that all the farms with more than 50 hectares are in the highest profitability class.

3.2. Analysis of the impact of public subsidies on profitability and of profitability of the factors per TF

The subsidies to income take part in the formation of the saleable gross production of FADN farms and thus affect the profitability of the factors. In order to purify this effect, an analysis was carried out by considering the farms' actual net income net of Community subsidies. The distribution of farms per profitability class and ESU changes consistently (Tab. 3).

Tab. 3. Farms per profitability class within the several ESU classes net of subsidies

Profitability classes	Number of farms					Total nr. of farms
	4 – 8 ESU % on the total	8 – 16 ESU % on the total	16 – 40 ESU % on the total	40 – 100 ESU % on the total	>=100 ESU % on the total	
IR 1	95,7	81,9	60,8	36,5	16,0	570
IR 2	4,3	12,8	18,0	13,1	0,0	111
IR 3	0,0	3,3	7,7	13,0	0,0	50
IR 4	0,0	2,1	13,5	37,4	84,0	134
Total	100,0	100,0	100,0	100,0	100,0	865

We noticed a remarkable increase (+28%) in the percent weight of the farms included in the first profitability index class, thus close to “marginality”, which confirms the remarkable weight assumed by the subsidies to income on the farms' profitability. The quasi totality of farms has in fact used public subsidies (from the uncoupled single payment to those for agro-environmental measures) and, on the whole, such amounts equalled 41% of the total net income.

This incidence remarkably varies according to the productive activities practised in the farm (tab. 4). It is determining for the farms with a “Specialized cereals, Oleaginous and Proteaginous crops” TF, equal to 18% of the sample for which even in some ESU classes the net income would stabilize to negative values in the absence of subsidies. For the farms having productive organizations which have benefited from extremely low direct payment or which have not benefited from them at all, such as milk cattle, vine and fruit sectors, the incidence of subsidies is remarkably lower (ratio Net Income Without subsidies NIW on Net Income NI).

This table highlights that only a few TF reach a profitability whose levels are higher than the unit. On the contrary, in many cases the remuneration of the factors is much lower than the Unit ones.

In the study, the reading of these data is crossed with information related to the farm's structural profile, altitude and management form and the location of the farm itself according to the programme areas identified by the Regional Administration for the application of Community policies. All this gives technicians a rather comprehensive knowledge which allow them to understand, also through the comparison with similar farms, the reasons at the basis of the farm profitability results and propose managerial solutions which can guarantee better remunerations of productive factors.

Tab.4 – Profitability of productive factors per TF (average values)

Technical and economic trend	Nr. of farms	PI	hours/ha	NI/ha	Unit remunerations			NIW/NI %
					Family labour (€/h)	Working Capital (%)	Land Capital (%)	
Cereals, Oleaginous, Proteaginous	156	0,63	47	310,33	5,5	1,7	1,1	-16,2
Other Seed plots, Mixed Seed plots.	101	1,25	89	833,87	10,83	3,4	2,1	54,9
Vine growing	8	1,37	186	1.751,64	11,91	3,7	2,3	89,3
Fruit and/or Citrus growing	152	0,83	319	1.535,22	7,22	2,2	1,4	79,2
Olive growing	20	0,55	80	388,4	4,76	1,5	0,9	-1,7
Mixed Tree growing	33	1,65	125	1.485,05	14,39	4,5	2,8	72,8
Milk cattle	20	1,87	153	2.730,82	16,31	5,1	3,2	87,1
Meat cattle	46	0,85	38	303,98	7,43	2,3	1,5	57,1
Mixed cattle	47	1,49	114	1.677,32	13	4	2,5	80,4
Goat-Sheep and Other Herbivores	131	0,8	57	453,6	6,99	2,2	1,4	59,8
Herbaceous-Arboreal	65	1,44	136	902,02	12,49	3,9	2,4	65,8
Mixed Herbivores	11	0,68	48	268,27	5,9	1,8	1,2	6,4
Seed plots – Herbivores	60	0,88	48	421,88	7,66	2,4	1,5	42,5
Mixed Cultivations - Breeding	8	0,73	110	745,13	6,33	2	1,2	61,6

4. Conclusions

The methodology thus allows the assessment of the farm profitability with different values of aggregation. The comparison between the RI values of farms with the same productive organisation and/or located in the same territory and/or belonging to the same class of economic size, together with the analysis of structural data, such as physical size, labour utilisation and equipments, gives the service system a tool for supporting the farm economic management. The reading of the farm economic results and their comparison within a homogeneous group of farms allow to assess, by means of opportunity costs, the satisfaction level of farmers' expectations and to analyse inefficiencies, critical points but also possible excellences which are at the basis of the results obtained.

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SUPPORTING INNOVATIONS SYSTEMS AND PROCESSES IN THE FIELD OF AGRICULTURAL DIRECT MARKETING: A CROSS-NATIONAL ANALYSIS BETWEEN FRANCE, ITALY, THE NETHERLANDS AND SWITZERLAND.

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Keywords: Innovation, agriculture, direct marketing.

This paper is based on collaborative work of all colleagues involved in the EU-funded IN-SIGHT project. The original work can be found in project reports at www.insightproject.net.

1. Introduction

Agricultural direct marketing is a traditionally obvious way of selling agricultural products, developed according to relations of proximity amongst families and neighbours. Even if it often concerned many producers, the agricultural direct marketing remained a small-scale, traditional and limited channel for a long period. Recently however, a new demand appeared for farm products, favoured by the spreading of urbanization in rural areas and new ways of life promoting alternatives to the industrial food products proposed by the big retailers.

These new initiatives in agricultural direct marketing involve consumers traditionally or newly oriented towards direct sell as well as new profiles of farmers like the ones involved in collective shops and solidarity groups of farmers and producers. Studying collective innovation in agriculture and in rural areas, identifying the main facilitating and hampering factors to their development were the main objectives of the IN-SIGHT project (EU funded) from which this paper is written. It presents and compares the situation of France, Italy, The Netherlands and Switzerland through in-depth reviews and case studies. It identifies relevant ways for the extension services to support innovation and innovators. In the present paper we will firstly present the methodology. Secondly we will describe the main innovations in direct marketing in agriculture, their characteristics and dynamics. Thirdly we will present the socio-technical systems of the innovations. Finally we will describe the main facilitating or hampering factors for innovation and propose some recommendations for the information and knowledge systems as for the policy makers, according to the stage of the innovation process. The innovation dynamic constitutes one of the main key explanatory factors of our findings.

2. Synthetic conceptual framework and methodological aspects

The IN-SIGHT project was a two-year research project co-financed by the European commission (2006–2008).

The IN-SIGHT project studied innovation processes and systems in Finland, France, Germany, the Netherlands, Latvia, Italy and Switzerland. The aim of the project was to build a conceptual framework and knowledge base for a more effective innovation policy in agriculture and rural areas. At the beginning of the project, a conceptual framework was designed on the basis of existing theories on innovation. It clearly directed the IN-SIGHT project towards a systemic and network vision as opposed to a linear model of knowledge transfer (Brunori et al. 2007). A comparative exploration of the national innovation policies revealed that those two visions coexist and that the linear model is still strongly embedded in the existing innovation policies and in the ways agricultural knowledge systems operate. In depth reviews of innovation processes in the thematic field of agricultural

marketing, bio-energy and rural services were carried out in empirical contexts. In this paper, we focus on the field of direct marketing. Case studies and national analysis are based on qualitative interviews, focus groups discussions and desk work. Comparative work was based on cross country thematic groups and the consultation of European experts. From our point of view (Knickel et al. 2008), innovation is not restricted to a technical or technological dimension. It increasingly concerns strategy, marketing, organization, management and design. Farmers do not necessarily apply 'new' technologies: their novelties emerge as the outcome of 'different ways of thinking and different ways of doing things' and in recombining different pieces of knowledge in an innovative way. Innovation is both "problem solving" and "opportunity taking". It is a response to internal and external drivers. Each innovation is characterised by a combination of technical, economic, organisational and social components. Organizational innovations, breaking barriers and bringing actors and competences together and social innovations redefining identities and roles of actors are often a must for the application of technological or economic innovations.

3. General overview of direct marketing and innovation in the field

We understand **direct marketing in agriculture** as the different ways for producers to sell their products directly to consumers. The direct relation between producers and consumers may be completed with semi-direct relations where producers sell their products to a collective system of marketing (involving several producers) or to restaurants or shops or even supermarkets, but with a personal relation between the producer and the buyer.

According to national statistics, the number and percentage of farms practicing direct marketing is very different from a country to another (see table 1): from 600 000 farms and nearly 40% of the farms in Italy to 4 500 farms (5.5%) in The Netherlands where this marketing practice disappeared almost completely during the 20th century, when food processing was completely moved from farms to factories. France and Switzerland are in a medium position, with respectively 15 and 20% of farms practicing direct marketing.

Table 1 : Direct marketing according in the different countries.

	N° farms	N° of direct marketing farms	% on farms that commercialize
France	660 000	102 000	15%
Italy	1 600 000	600 000	37,8 %
The Netherlands	82 000	4 500	5.5 %
Switzerland	63 000	13 000	20.8%

Recently, new ways of doing direct marketing appeared as a response to problems (income, industrial food products) and opportunities (new types of farmers, urban way of life and urbanization). Some new types of farmers were seeking new opportunities to improve the added value of their products, particularly in small farms (Couzy et Dockès 2008). For farmers who are at the initiative of a direct marketing innovation (collective shops, Internet sales ...), it is at first a mean to improve their income with the direct selling and to get free of the agribusiness firms. Some farmers also stress a more idealistic motivation of promoting local production and marketing, as a way of preserving the village identity. This idea fits also some consumers' demand to develop direct contacts with producers. This new demand supported new dynamics for the agricultural direct marketing.

Those new initiatives become a significant alternative to the dominant supply chains (Goodman 2003) and have an increasing impact on rural development (Renting et al, 2003). They can be related to:

- Re-development of existing direct marketing frameworks : weekly farmers street markets and various types of on-farm selling (self-picking, self-service, tasting, etc.).

- New types of direct marketing (or diffusion of pioneer initiatives): community-supported agriculture, baskets of products for tourists, collective shops of producers, etc.

In our research work, two main innovative topics were specifically studied:

- Solidarity groups (in Italy) or community supported agriculture (in Switzerland) : citizens or consumers are directly at the initiative of the innovation and aim at promoting new consumption practices
- Direct sales organised by producers, through collective shops (in France) or a small scale cooperative (The Netherlands).

Two cases illustrate the dynamic observed:

“Jardins Potager” in Switzerland

In 2004 a family is interested in organising a direct supply of organic farming products, in partnership with other families. Motivated by the concept of box-schemes, a contact is developed with one of the initiators of the Jardins de Cocagne, a pioneer initiative in Switzerland settled in Geneva in the 70's, and with Biovaud, which is the cantonal organisation for organic farming. Biovaud proposed 2 gardeners interested in direct marketing. In March 2005, the one closer to Lausanne was contacted and he rapidly agreed with the project. This gardener was in a conversion process from supplying of one of the main Swiss retailer to direct marketing. He had already developed with success the selling in open markets and on the farm, and was interested by this new project. The cooperative legal status has been chosen after personal contacts with friends belonging to a cooperative movement. Started in 2006, the membership in the cooperative Le Jardin Potager has been rapidly a success, with 260 members in 2007 and sales for over Fr 200 000 (130 000 €) per year. The strategy is now to stabilize the development, and later to limit the size to 400 members. Almost 20 similar initiatives exist now in the region (2008).

Uniférme and the collective farmer shops in France.

In 1978, 7 producers wanted to break with traditional methods of marketing and in particular with that of farming cooperatives. They wanted to control the marketing of their produces and build a common project. So they decided to create a collective shop, on the bases of self management and the selling of quality produces at high prices. They directed their project alone, with no external help (most of them had a selling experience acquired in a former job). Nearly 30 years later they still succeed : 50 farmers sell all their production through the shop which is located 20 km from Lyon, on an important main road between the regional capital, and another town. The self management is still alive; there is no one individual in charge, but an alternating leadership. New associates arrived as well as new solidarities in helping new partners to join the group. At a larger scale, in the Rhône-Alpes region, collective farmer shops appeared in 1978, after a dormant period of more than 10 years, they developed, almost exploding over recent years. From 15 shops in 1996, they passed to 66 in 2009.

4. The dynamics of recent innovations in direct marketing

The innovation dynamic, the actor systems and the evolution of the consumption models in different European countries, constitute the main key explanatory factors of our findings (Knickel et al, 2008).

As developed by Brunori et al 2007, when innovation cycles are repeated, interactions between people, tools and natural resources become more and more structured. Four levels of organization of the socio-technical network can be identified:

- **Novelties** are localised ‘breaks of the routines’. A creative combination emerges in response to problems and opportunities. Relations between actors often start as informal. They are limited by external constraints like laws, actors, norms.

- **Niches** are the result of an aggregation of different smaller systems. Niches are the places where new paradigms emerge as an effect of learning processes. Relationships and alliances are built, roles and responsibilities are differentiated. The network or partnership mobilises and uses various physical, financial, human, technological and other resources to develop a new product or service.
- **Regimes** are paradigms turned into practices, into concrete socio-technical systems. Networks are structured and coordinated by rules. Collective norms are established. Novel economic, social and organisational solutions are achieved. Innovative products and services are promoted and reach the market. Innovations bring results in terms of economic, social or environmental gains.
- **Landscapes** can be changed as an effect of supranational policies or scaling up of radical changes, but more often changes in socio-technical landscapes are important drivers for radical innovation. Innovation networks, norms and practices are consolidated and results are evaluated in a reflexive process, redirecting innovations towards new challenges and sustainability objectives. Critical assessment and governance of innovation become central.

In the field of direct marketing, the innovation cases we studied have an historical trajectory. At first, they emerged as a novelty. A few individuals are often at the emergence of an innovative project. They rely on their own skills and social capital (often related to alternative non agricultural circles). Initiators find some individual ways to cope with the regulatory framework which is rather hampering. They benefit from very little support and extension services are often not involved. Relatives, friends can support the initiators in getting access to knowledge and informal networks can be created. Then, two main types of evolutions occurred. Firstly diversification or horizontal growth, which seems to be favoured by the actors of solidarity groups projects, with a high involvement of volunteers and a will to remain in an alternative situation. It consists in including new farms, new products in a collective shop, or new products, new consumers in a solidarity group, and thereby broadening one initiative's scope of activities. With the direct support from the first initiatives, or in relation to the broader alternative circles which promote them, there may also be a duplication or replication of the initiatives, especially in the case of community-supported agriculture for which it seems that there is a logical limit to growth considering the constraints of territory and social links. Secondly, spreading, with the involvement of new actors and the support of the agricultural knowledge system or the local administration system. It can conduct to the development of many collective shops in a region, or to the organisation of a network of small initiatives. In that case, those initial and informal networks can become more structured and institutionalised (from novelty to niche or from niche to regimes).

5. Supporting innovation in the field of direct marketing

A few individuals are often at the emergence of an innovative project, they rely on their own skills and social capital. They find some individual ways to cope with the regulatory framework which is often rather hampering.

They benefit from very little support. But more structured coaching could be helpful. The following recommendations can be designed to support the development of innovation in rural areas.

Openness: Innovations often challenge the present way of doing things and therefore generate contra-productive reactions. These barriers can be overcome when actors have an "open attitude" and experience an "innovation culture". Sectoral and territorial barriers affect both individuals and institutions. Often innovation is exclusively considered to be technological. Social and organisational aspects of innovation are essential as well and need to be taken into account.

Flexibility and capacity of adaptation: Public decision actors, responsible for legal frameworks and financial support, can be drivers or barriers to innovation. Innovators face difficulties in obtaining support from administrations as innovations are often out of the regulatory framework. Mechanisms and procedures to get support are often too complicated. The legal framework should therefore be transparent and accessible to

innovators. Public decision actors need also to be proactive in order to support innovation: in the creative phase, flexibility is needed in order to allow novelties to appear. When partnerships are required and norms challenged, these actors can be supportive in adapting (regional) policies and regulations.

Adapted support: One of the major conclusions of the research was that extension services need to adapt their delivery services to the different types of innovation networks they encounter. As the initiative grows or spreads, networks can get financial support from local policy makers and the regulatory framework adapted (Roep et al 2006). In that phase, extension services can have a role of broker or facilitator. Associations, non profit organisations, can take this role and new networks can be built that do not belong to traditional extension organisations or to the agricultural networks. Once the network becomes more structured, funds available and regulatory framework adapted, project management, coaching, trainings, exchange are the type of services that can support innovators. In a diffusion or spreading situation, specialised expertise, availability of technical and economic references information and communication constitute important development factors. Extension services are part of an innovation network and can take an important role in the up-scaling of local and isolated initiative. A system analysis of the innovation networks could support extension services in calibrating and targeting their support activities.

Governance of innovation: Governance of innovation is a challenge for each network at local, regional, national and European level. More effective connections can be created between European rural networks and innovation networks. These interfaces can be reinforced by new forms of coordination between innovation policies and agricultural and rural development policies. Strategic stewardship of innovation towards new challenges should be encouraged for example through platforms, communities of practice, training programs or exchanges. This is challenge for extension systems.

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WHEN EXTENSION SYSTEM FAILS TO CONNECT WITH THE FARMER'S LIFEWORLD

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Keywords: Participatory projects, knowledge generation.

1. Background – briefly on learning in participatory projects

There are several ideas on which factors that are of importance in order to achieve learning in participatory projects. Leuwis (2004) states that it is important to recognise that learning takes effort, energy and time – hence it can be considered a ‘scarce resource’. Consequently, in order to get people to participate they need to be motivated by doing so. In *Communication for rural innovation* (2004) Leuwis lists ten factors that may affect the motivation to learn. Among those are; i) the relative importance/seriousness of an experienced problem, ii) direct involvement with a problem, iii) urgency, iv) complexity, observability and triability v) social and organisational space and vi) resources and safe space for experimentation. This paper is about a Swedish participatory R&D project running between 2003 and 2006 called ‘Team 20/20’. This project started as a response to the ongoing reform of EU’s sugar politics. The reform was still not implemented, but one thing was for sure – when being enforced the growers income from sugar beet farming would decrease considerably. As we see it, all the factors mentioned by Leuwis was in place - there were clear incentives, a sugar industry with financial capital, well-educated farmers and advisors, and a sector which was facing a crisis – something had to be done. But evaluations showed that even though the participants, especially the farmers, were satisfied with the project as such, not many concrete improvements came out of it. Why? In this paper we try to elaborate why well-planned and seemingly competent professionals fail to deliver expected innovations.

2. The Team 20/20-project takes form and runs while the politics are at change

Reasons for choosing a participatory approach

Before starting to analyse the Team 20/20 project, it is appropriate to describe it in some more detail. The aim of the project was to: quantify which yield improvement that can be obtained, by applying a field and farm adapted package of measures where the important factors influencing the yield have been taken into account (Gunnarsson, 2002)

The R&D project was managed by Swedish Beet Research (SBU), which is equally owned by Danisco Sugar and the growers themselves. Already at the planning stage of the project, it was set as a participatory and on-farm research project. In a global perspective this is not innovative as such, but in Swedish settings this is to be regarded as something new. Traditionally SBU has conducted conventional research projects, focussing on field-plot trials and working with one parameter at the time. The aim of this project was to take the research one step further, and hence also towards real farm settings. The main arguments for choosing a participatory approach and to work with on-farm research were; who has the best knowledge on what is desirable and feasible on farm-level, which kind of farmers should one work with in order to develop new knowledge and practice, and how to improve the demonstration value for other farmers (Gunnarsson, 2002).

So, inspired by participatory learning and action (PLA), and its methods, SBU gathered seven successful sugar beet farmers, their crop advisors and different researchers, who together formed the Team 20/20 group. The goal was to decrease the production costs with 33% per kilo extractable sugar in three years time – something

that can be achieved by an increase in yield by 20% and a decrease of the hectare cost with 20%, thereby the name. Hence, a quite radical improvement of management and on-farm performance was needed.

Why now?

One of the reasons behind the Team 20/20 project was the heading reform of EU's sugar politics. The old system was often hardly criticised for lack of competition, distortion of the market, high prices for consumers and users, and its influence on the world-market, which mostly affects developing countries (EU Commission, 2004). During the project the European Commission decided to accomplish a price reduction with 44%, which will be definitively accomplished by 2009. Hence, if sugar beets will continue to be a profitable crop to grow, SBU asserted that even the best growers needed to make their sugar beet production even more effective.

Their way of working

The thought with the project was to scrutinize the sugar beet production on the participating farms, to establish their development potentials, take measures, analyse the results and come up with new ideas – basically based on a process of experiential learning (Kolb, 1984). By applying a set of measures, tailored for each farm, the hope was that the total effect would be greater than when just adjusting one parameter at time – i.e. some kind of emergent or unknown effect was hoped for. At the beginning the focus of the project was the measures taken on field level, for instance, ploughing-free cultivation, reduced soil cultivation, cover crops and soil enhancement by liming. Even though this might be seen as measures that could have been taken within the frames of the farmers' ordinary production system, several of the participants claimed that many of the measures would not have been taken if it was not for the project. The project had made them focus on the sugar beet cultivation in a way that they would not have done otherwise. However, the 'big innovations' that the group had hoped for kept being absent. As a consequence, the scope of Team 20/20 was later extended to include general management issues, which meant that each farm's economy were mapped out and analysed, with the aim of finding new ways of making money, and thus maintain the farms' profitability despite the reduced sugar beet prices.

3. Methodology

This study is empirically based on two sets of qualitative semi-structured interviews with all participating group members in the Team 20/20 project (in total 17 individuals). The first time the group members were interviewed was in the spring of 2005. Those interviews were made in the farmers' homes and at the advisors' working places, and took somewhere between one hour up to three hours to make. The second set of interviews was made on telephone during the winter of 2007, and those interviews took between half an hour and a good hour to make.

All interviews were recorded, transcribed and analysed. Consequently the issues enlightened in this paper are the ones perceived by us as the most important ones – both for the project as such, but also as an input to the discussion about the Swedish agricultural extension system in general. Parts of our findings have been discussed and commented by the group, especially by the project manager who has been our key informant throughout the project.

4. Shortcomings within the project in particular and the extension system in general

The shortcomings discussed below are issues we have identified within the Team 20/20-project. However, some of the points might be transferrable to extension and farming system as a whole. The identified problems range from negative consequences of group constitution, to the effects on both people's mind-sets to project organisation due to existing disciplinary structures within the research and extension system.

A homogenous group

The notion of homogeneity and heterogeneity and its correlation to a group's ability to achieve innovative ideas has been, and still is, in focus for many researchers within the field of innovation. Talking about diffusion of innovations, Rogers (1995) claims that homophily eases communication and hence the spread of the new concept. Individuals simply enjoy the comfort of interacting with others who are similar. This is probably one of the reasons why the Team 20/20 group enjoyed so much working together. They shared a common interest, especially in the first part of the project when the focus was solely on sugar beet farming. But even despite that, we consider the farmers in this group as a rather homogenous one. And concerning the advisors most of them shared the same educational background and was also employed by the same extension organisation (which is also the biggest in that region). However, when it comes to the *generation* of innovations, heterophily is to be preferred (Leonard, 2006). Research has consistently found that groups of people that are intellectually heterogeneous are more creative in its problem solving and decision making than homogeneous ones (c.f. Cox, 1993; Leonard, 2006; Frankelius & Vogel, 2009)

A technological fix and a limited space for innovation

Another dilemma within the Team 20/20 project, which is connected to the matter of homogeneity, was that they were suffering from a technological fix. Already in the beginning of the project they had limited their thought on how to achieve the set goals – in fact the project limits were set already in the application for money.

Those limits were in this case first set on the field level, and then expanded to farm level as the project subsequently also included general management issues. Not being able to enter a project with an open mind is of course not unique for the Team 20/20 group. People tend to interpret the world around them in terms of already existing concepts and rules and these patterns of thinking determine and limit the person's understanding (Maturana & Varela, 1984; Alvesson & Skjöldberg, 2008).

The technological fix is also related to both the perceived and potential space for innovations. What ideas or thoughts did the participant perceive to be part of the sugar beet context and what level of self-censorship did take place? Furthermore, without having any profound knowledge about the development potentials in crop management in general and sugar beet farming in particular, we have come to doubt whether the potential space for innovation really is as big as formulated in the Team 20/20 goals, when dealing solely with an already highly developed and technological production system, and working with some of the most effective Swedish sugar-beet farmers.

A rigid view on what is possible

The Swedish AKIS is under transformation. Traditionally the different organisations/firms are rooted in a certain branch of agriculture – animal husbandry, cropping, economy and so forth. This means that the Swedish extension system has been, and still is, rather disciplinary bound. However, things are changing and by the means of collaboration the ambition is to enable a more systemic and integrated extension, where the farm is regarded as an open system with many interacting processes, as a way to better meet the farmers' demands.

So how come it has taken such a long time to reach this? We experience several of the extension organisations within Sweden as rather rigid. Many advisors in Sweden start working after finishing their master's degree. They often inherit a defined set of farmers from an older colleague, as well as a way of working. So, even if working as an advisor is a rather free profession – where one has many possibilities to decide how to work – the perceived 'space for manoeuvre' (Long, 1989) might feel small. Which obviously have implications on the advisors chance to make necessary changes. When not working on an issue on the scale needed, or even focussing on the wrong issues, one is of course limiting the space of innovations tremendously.

5. The notion of lifeworld and system delimitation

As we see it the three shortcomings mentioned above are interrelated and a consequence of each other. The Swedish extension system is disciplinary bounded and rather homogenous to its character. This becomes steering both when it comes to the participants understanding on what kind of project that is needed to meet the decreased profitability, or even what is possible to achieve, as well as building a suitable group for the mission that lies ahead. We believe that knowledge about the concepts lifeworld and system delimitation could have been helpful for the participants and fruitful for the project if consciously reflected upon.

Understanding the farmer's lifeworld

We define lifeworld as the coherence of meaning, from which people interpret and understand everyday situations. It is in the lifeworld that we have our social relations; we work, have a family and meet friends. It is simply the world where we live most part of our life, and it is expressed through our language. We claim that if the advisors had an interest in and increased knowledge about the farmers' lifeworld, they would be able to better take their whole life situation into account, not being restricted to only optimising existing farm management. It would also imply asking totally new questions like: How do you want to live? What are you interested in? And, how do we get closer to your vision? We believe that to achieve this, a deeper level of critical and reflective dialogue is needed, where all participants are equally engaged, where all reflects on what is being said, and where one is both self-critical and critical towards existing structures. We believe that the farmers involved in the Team 20/20 project above all are businessmen in the agricultural sector. For them it is of subordinate importance where the money comes from. By knowing more about the farmer's lifeworld, the aim of the project could rather have been to analyse the future role of sugar beet cultivation on each farm, provided that the farm's profitability was to be maintained.

The importance of system delimitations and to understand your Weltanschauung

In order to be both critical and reflective, we claim that it is of great importance to understand which system you are set to improve. All systems have its delimitations and limitations. It is impossible to manage everything, instead the focus should be to become aware of the delimitations that one makes and which consequences that has. Consequently, it is crucial to understand and being able to question ones own Weltanschauung, that is, to question ones own assumptions, the things one takes for granted. A critical and reflective dialogue, for instance in the context of a PLA-process, is a good way to start. In the Team 20/20 project there are at least two systems with problematic delimitations. First, the Team 20/20 group as a system itself. We believe that the disciplinary bounded extension system and the homogeneity of the group limited their ability to think outside the box – they suffered from a technological fix. The mere constitution of the group set an unspoken but common system boundary in the project: the field. A disciplinary bounded extension system is most of all interested in pieces – and the advisors are often taught in a Cartesian reductionism way of thinking. This implies a preference for working with smaller systems, since they are regarded as more manageable. However, they are also often of less relevance in relation to what wants to be achieved. The other system is the one that constituted the focus for the project: to enhance the profitability on the field level. We believe that this narrow way of defining the problem and trying to solve the up-coming situation, show a rather uncritical and simplistic understanding on the level of change that is needed.

6. Implications for the future of extension

In order to create an environment for innovation, advisors and organised extension systems must develop its ability to critically reflect upon its own practice and Weltanschauung.

When facing increased external pressure, and in order to reach a viable and sustainable farm management, farmers need to reach at least the second order of change (c.f. Ison & Russell, 2000), that is changing established practices. This would involve influencing and changing the system itself, which the farmers as well as the extension system are part of. Innovations which go beyond already assumed outcome, demands systemic learning and an ability to take into account that the farm is embedded in structural and communicative networks. Radical innovation is not a process of fine tuning – it is a process of crossing existing boundaries. In the Team 20/20 project the system boundaries were set too narrow already from the outset, why there were only small potential to develop practice through new perspectives.

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ASSESSING THE IMPACT OF THE AGRICULTURAL ADVISORY SYSTEM IN ARMENIA

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Keywords: Extension evaluation, technology assessment.

1. Introduction

The RESCAD project started in 2005 and it had a number of different components but the important component for the RASC and MASC network was concerned with strengthening of advisory services. The main loan provided for vehicles, office equipment and laboratory equipment to be supplied to the RASC and MASCs. A Japanese grant was also available to fund some technical assistance mainly to support inputs from international experts and study tours. A substantial training program was carried out during the RESCAD project. Technical assistance was provided for the MASCs and RASC by international specialists, including practical support in business planning, development of income sources, charging levels, determination of overhead costs and marketing their services. Local expertise was also provided to improve RASC and MASC business practices in topics such as accounting standards, legal requirements, tax issues and labour codes. Special attention was paid to increasing capacity of village-level and community extension agents through a programme of in-service refresher courses, with training and information sessions organized by the RASC on technical topics and on farm management topics.

Overall, the extension output has been quite impressive. For example, in 2008, the reported figures were that around 46,000 farmers were served; 2,000 seminars were carried out with 38,000 participants; 43 radio and TV broadcasts were made; 637 published materials were distributed; 242 demonstrations and 426 field days were held; and 695 business plans were prepared.

An important element of the work of the advisory services are the Technology Assessment Projects (TAP) which was introduced in 2001 as a tool to address farmers' specific problems by bringing farmers, advisors and researchers together. Farmers directly apply through their MASC to ensure that the selected TAPs are demand-driven, and they contribute 25% co-financing. The cost of each TAP has averaged about US\$ 1,500. Plant variety trials, plant protection, soil fertility, crop cultural practices and a limited number of livestock themes have been common topics of the TAP grants. To date, some 700 TAPs have been completed. Good quality fact sheets are prepared on successful TAPs by the RASC and are distributed to farmers through the MASCs, made available in advisory rooms, and posted on the RASC website. The TAP program is coordinated by the RASC with the final list of projects approved by the Ministry of Agriculture (MoA). Overall, the TAP program has proved to be a good model for testing and demonstrating appropriate technologies at the village and farm level.

A pilot Integrated Pest Management program based on the participatory Farmers' Field School (FFS) approach was then started in 2007 under the RESCAD project. A local NGO "Green Lane", which had previous experience and is a member of the Global FFS network, was contracted to carry out the program. The pilot has included around 20 farmer groups with some 300 participants.

These developments during the implementation of the RESCAD project have improved the quality of the advisory services and extended the coverage and range of activities and services. A recent survey of 262 rural communities by the National Statistical Service of the Republic of Armenia (Rural Community Survey Report,

2009) in all ten Marzes showed that 76% of the communities had access to MASC services which is an increased level of coverage over the life of the RESCAD project.

2. Methodology

Information from this assessment was used to improve the Marz Agricultural Support Services (MASC) advisory service system and increase its longer-term sustainability. To accomplish this objective, there were two surveys. The first evaluated farmer satisfaction with the MASC in 2007. The second, smaller survey with community mayors was used to evaluate the wide impact of MASC to the local community in 2007. The field work for both surveys was conducted in July 2008.

Two hundred seventy farmers and 18 community mayors (288 total interviews) in 3 Marzes, 9 regions, and 18 communities were interviewed. The following methodology was used for selecting the participants in this survey. Three Marzes (Shirak, Syunik and Tavush) were selected for the survey because they represented the typical Marz in Armenia, in terms of their agricultural productivity, topography, and crop and livestock enterprises. Shirak was also selected because it had been interviewed in the previous survey and would allow a comparison between then and now. There are 3 regions in each Marz for a total of 9 regions. Two communities per Marz were selected. These communities were typical of communities in the region in terms of agricultural productivity, topography, crop and livestock enterprises, and relative distance from the MASC. In addition, the MASC had to have been active in that community in providing advisory services.

Each Director of a MASC selected 25 farmers from a given community with whom the advisors had worked. This list did not include the community leader. There was a combination of selected farmers and randomly selected farmers. The Director would note the top five farmers, of the 25, with whom they had worked extensively (Rajalahti et al 2005). These five farmers were interviewed. Of the remaining 20 farmers, their names would be randomized in a list and the 10 farmers at the top of the list would be interviewed. The Director of the MASC provided the names of the 18 community mayors to evaluate the benefits of extension to the community as a whole. While the community mayors may have also been farmers, they were not given the farmer survey, but rather the community survey.

3. Results

Table 1 shows key characteristics of the farmer households and their evaluation of the impact of MASC on their agricultural practices. Table 1 is divided into four sections. The first section shows the difference responses by the three Marzes. The second section shows the differences by farm households who sold a majority of their farm production and the farm households that consumed the majority of their production. The third section compared selected households with those who were selected randomly to participate in the survey, and the fourth section shows the overall totals for these characteristics.

Compared to Syunik and Tavush, Shirak has a more productive agricultural base. The farms are larger, most farmers sell a majority of their produce, and the 2007 sales of agricultural products were higher. However, the responses to the survey were approximately the same among all three Marzes. Because of MASC, the farmers in these three Marzes, made changes in crop and livestock production practices, but not in their business practices.

This is somewhat surprising to the authors because countries such as Armenia were thought to need help in business practices to smooth the transition to a market economy. Yet, the farmers' interest, at least at the present, is in agricultural production. The farmers, due to MASC, saw an increase in yields, increase in total farm production, decrease in cost of farm operation, and increase in farm income. The increase in farm income, due to MASC, was higher in the Shirak Marz because of the larger farms and greater sales of agricultural products.

Some of the communities had local advisors to help the MASC advisor. The Tavush Marz did not have these local advisors. For the other two Marzes, their effectiveness was not rated very highly. MASC made significant improvements to better post harvest handling, reduction of soil erosion, safer handling of chemicals, and increase in quality and quantity of family food. There were two exceptions, post harvest handling in Tavush and reduced erosion in Syunik. A major difference among the Marzes was that Shirak, the most active agriculturally, did not want to help pay for the help of the MASC programme. The responses to the survey were also grouped by whether the farmer sold a majority of their produce or consumed a majority of their produce. The farmers who sold a majority of their production were larger in terms of farm land and farm sales. While their farm characteristics were dissimilar, their responses to the survey were remarkably similar. Both were interested in livestock and crop production advice, not business advice. Both increased yields, total farm production, and income; and decreased costs of farm operations. Both improved their post harvest handling of fruits and vegetables, reduced soil erosion, improved handling of chemicals, and increased quality and quantity of family food. And, while most communities did not have village advisors, those who did, did not rate their effectiveness highly.

In terms of the survey design, the selected farmers tended to have larger land holdings and larger agricultural sales, but otherwise were similar to the randomly selected farms. The responses to the survey of these two groups, who were selected differently, were nearly identical.

A survey was also conducted of the 18 community mayors. Seventeen of the mayors were male and one was female, however, the longest serving mayor was female. The average age was 47. The community mayors considered the MASC availability level to be very high. To the statement of a question "MASC reaches all the farmers in my community" included in the questionnaire, 16 answered "I strongly agree" and two answered "I agree".

Seventeen mayors are satisfied with the number of visits to their community by MASC and one (in Tavush Marz) does not consider the number of the visits to be sufficient. As for the community mayors' willingness to pay the cost of advisory services, compared to other community advisory services, a preference is given to MASC advisory services. Taking into account the benefits received from MASC advisory services, 14 were willing to pay the cost of the advisory services provided by MASC, two were not sure and two community mayors did not agree to pay for the above-mentioned services. Six community mayors have expressed willingness to pay other community advisors and 12 are against paying other advisors at all. At the time of this survey, the community mayors were not aware of their farmers' relatively poor opinion of the local advisors. According to the mayors, the most successful advisory services were plant protection (most frequently mentioned), introduction of new technologies and advanced practices, application of crop rotation, seed breeding, and livestock production.

Reference

Rajalahti, Woelcke, and Pehu, 2005. "Monitoring and Evaluation for World Bank Agricultural Research and Extension Projects: A Good Practice Note", Agricultural and Rural Development Discussion Paper 20, Washington, D.C., page 55. The authors note that agricultural success projects have a skewed distribution and that some combination of selected successful projects and randomly selected projects should be used.

National Statistical Service of the Republic of Armenia, 2009. "Report on Rural Community Survey"

Table 1. Impact assessment of advisory services provided by the Marz Agricultural Advisory System in Armenia, by different Marzes, type of farm operation, and by survey design, 2008.

Item	Marz			Majority of Farm Production is		Survey Design		TOTAL
	Shirak	Syunik	Tavush	Sold	Consumed	Selected	Random	
<i>Selected Household Characteristics</i>								
People living in Household (no.)	5,5	5,0	5,2	5,2	5,2	5,2	5,2	5,2
Total farm land, owned & leased (1,000 m ²)	73,8	44,4	13,0	69,0	21,6	47,4	41,9	43,7
2007 sale of agricultural products (1,000 drams)	1.020	493	435	939	281	776	592	656
Sell the majority of farm production	60%	36%	44%	100%	0%	50%	45%	47%
Consume the majority of farm production	40%	64%	56%	0%	100%	50%	55%	53%
<i>Impact of Extension Program</i>								
Because of MASC, farmer made changes in								
Business management	3%	22%	9%	16%	7%	14%	10%	11%
Crop production	83%	82%	100%	88%	89%	87%	89%	89%
Livestock production	71%	69%	94%	87%	70%	85%	75%	78%
Because of MASC, changes by farmer led to								
Increase in yields	98%	92%	94%	95%	95%	97%	94%	95%
Increase in total farm production	92%	71%	94%	95%	78%	86%	87%	86%
Decrease in cost of operation	83%	53%	92%	88%	70%	79%	79%	79%
Increase in farm income	70%	91%	100%	96%	77%	92%	84%	87%
Income increase (1,000 drams)	195	33	40	108	52	114	70	85
Farm income today is higher than 3 years ago	93%	100%	97%	99%	93%	98%	96%	96%
If MASC was not present, farm would suffer	100%	100%	100%	100%	100%	100%	100%	100%
Would you willing to pay cost of MASC?	6%	91%	100%	60%	64%	59%	63%	62%
Your community has a local advisor	29%	44%	0%	30%	19%	27%	23%	24%
Village advisor was effective	3,3	2,3	NA	2,8	3,3	2,7	3,0	2,9
(1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly disagree)								
In 2007, due to MASC, improvements were made:								
Better post harvest handling	100%	97%	23%	73%	73%	73%	73%	73%
Reduction of soil erosion	99%	13%	99%	88%	65%	75%	75%	75%
Safer handling and chemicals use	98%	94%	100%	97%	98%	98%	97%	97%
Increase in quality & quantity of family food	98%	97%	97%	98%	96%	97%	98%	97%

One Euro = 500 Armenian drams

NON-FORMAL EDUCATIONAL INTERVENTIONS TO STRENGTHEN SOCIAL CAPITAL FOR EXCLUDED RURAL POPULATIONS IN PORTUGAL

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Keywords: Non-formal education, rural training, social capital, empowerment.

1. Introduction

The paper will address a set of initiatives to strengthen social capital and empowerment among these excluded rural populations. How can the teaching-learning process play a greater role in constructing additional social capital for excluded groups in mountainous rural areas? This will be an important point of discussion for the data used to evaluate rural training programs.

Woolcock and Narayan (2000) have summarised, outlined and categorized empirical studies surrounding social capital and their practical orientation for rural development. The studies have defended the idea that excluded groups need to increase their social capital and relationships with other groups, entities and governmental figures to be empowered and participate more in the decision-making process in their communities.

The authors have identified the following categories of social capital: 1) the communitarian perspective (clubs, associations and civic groups) with a view that social capital is good; 2) the network perspective that stresses the vertical and horizontal associations among people which value the intra and inter organizational relationships of people in the community; 3) the institutional perspective treated social capital as a dependent variable without being good or bad. The capacity for people to act depends on the quality of the formal institutions (political, legal and economic) that make up the contextual system in which the actors occupy; and 4) synergy perspective concludes that embeddedness (nature and extent of the ties constructed by citizens and public officials) and complementarity (mutually supportive relations between public and private actors) determine the social capital synergy between citizens and governmental officials (2000:236).

Regarding the empowerment concept, the paper will focus on the human and social skills dimension. This dimension is needed by the excluded populations to become more involved in the decision making process within their communities in governmental and non governmental organizations involved in rural development. Luttrell et al. (2007:1) quotes Page and Czuba (1999), "Empowerment as a multidimensional social process that helps people gain control over their own lives. It is a process that fosters power (that is, the capacity to implement) in people, for use in their own lives, their communities and their society".

2. Case Study Evaluation

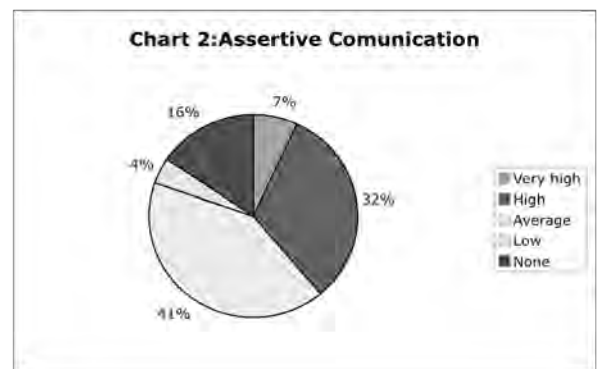
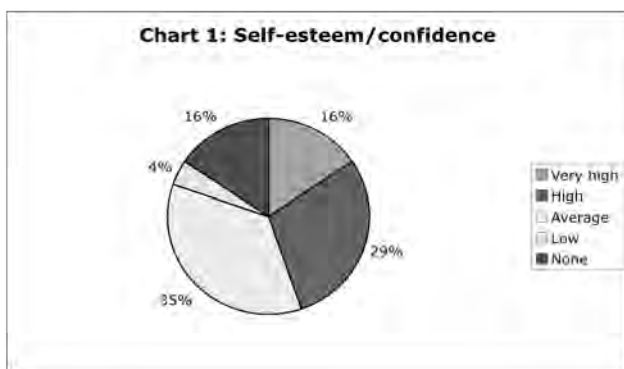
The instruments used in the study to collect data were questionnaires (116 trainees), focus group interviews, and life story interviews. The instruments to collect quantitative and qualitative data are supported by Isaac and Michael (1981), Patton (1980) as well as many others. The focus of the analysis will address teaching-learning initiatives within rural training programs that permit active learning by women and men to strengthen social and employment skills and reflect upon social capital in order to alter empowerment in these rural communities.

3. Discussion of the Rating Results

The participants were asked to rate themselves using six questions that had a numerical five-point scale (5=Very high; 4=high, 3=average, 2=low and 1= none). The rating takes into account their personal growth as a result of the rural training programs. The results of their rating will be discussed and described in the following charts.

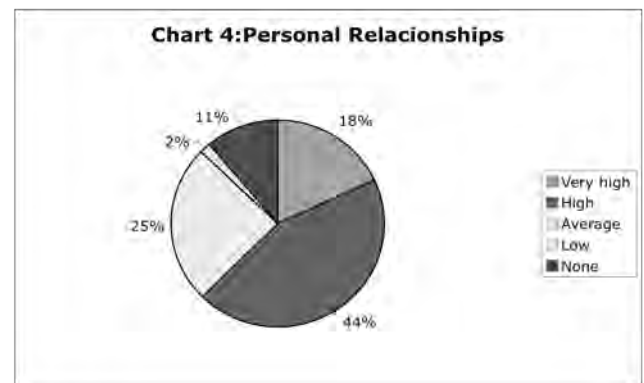
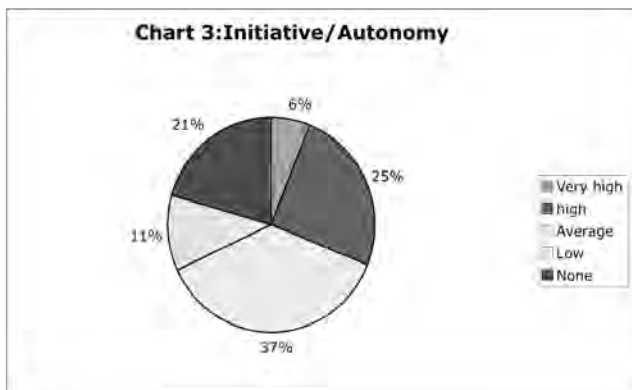
Chart 1 shows that the trainees have gained self-esteem and confidence according to their rating from high to very high (45%). The mean rating for this category was 3.3. “The profile of these participants is female (87%), married (80%), unemployed, 45 years of age with children, low education (over 50% with 6th grade or less) and with low family incomes” (Koehnen and Baptista, 2007). The social development of these participants to function better in their families and local communities can be attributed to these training programs. The teaching-learning activities such as group work and discussion played an important part in improving self-esteem, as well as the possibility to participate in these educational programs.

The participants have rated an improvement in their communication capacity (see Chart 2) with others as at least average to very high (75%). Communication is an important competency in the working world as well as interactions with family and community members. The communication and linking process is important in order to build social capital. The mean rating for assertive communication was 3.1. These training courses required the trainees to present information orally in the classroom among their colleagues and trainers. This was an important teaching-learning activity to improve communication skills.

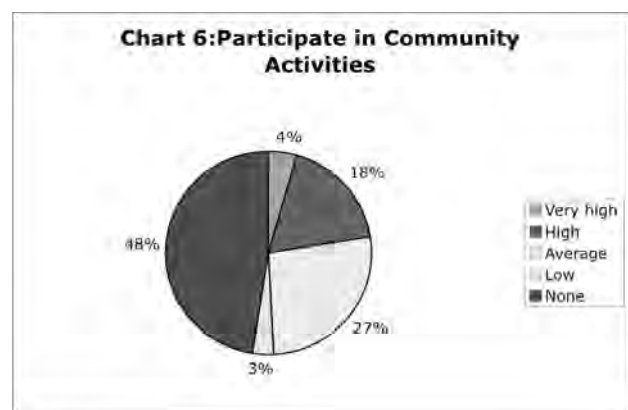
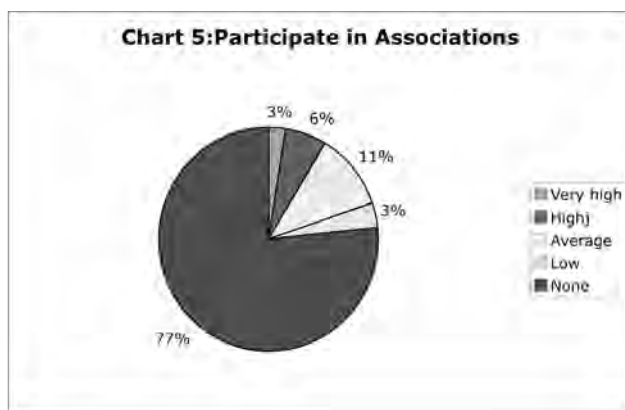


At least 31% (see Chart 3) of the participants rated their initiative as high to very high after the training courses. The mean rating for initiative was 2.8. What is happening at the training site to increase their initiative and autonomy? In some cases, the participants were responsible for identifying and defending agricultural production activities to increase family income in discussion groups. The trainers used social interaction role-playing to permit women and men to share their perspectives, aspirations and ideas for improving their livelihood and family owned properties as well as develop their thinking capacities.

In the working place, many employers are looking for people that have good personal relations, social skills and job skills with fellow workers and customers. The information on Chart 4 can be considered positive in the improvement of social skills that relates to social development and lays the foundation for the construction of social capital in the community. The trainees rated themselves at least average or higher in their improvement with relationships (54%). The mean rating for personal relations was 3.6. The training courses contributed to creating friendships and relationships with the participants, instructors and quests. Many training courses used various educators in order to give participants the possibility to interact with different personalities.



According to Charts 5 and 6, the trainees are participating at a low level in community associations and activities after the training programs. The mean rating for participating in associations was 1.6 and the mean rating for participating in community activities was 2.3. In fact, 79% (associations) and 49% (community) said they did not participate in these types of non-economic activities.



The training programs objectives were to increase employment or improve employment skills in a low-density mountainous region. The training programs should have also incorporated other teaching-learning activities and methods to attempt to increase participation and of course empower these less favoured members in the rural population. The evaluated training programs were not concerned with implementing non-economic initiatives in rural development. The training programs were primarily concerned about economic initiatives, but non-economic initiatives such as strengthening social capital skills would have been beneficial for these excluded rural participants and the rural communities. With this additional objective, the training programs could have developed teaching-learning activities to permit participants to practice constructing networks and synergistic activities to reflect embeddedness and complementarity. Sustainable rural development requires an active rural population involved in collective or community decision-making and problem solving. These non-economic initiatives can complement the economic initiatives of these rural training programs.

4. Constructing Social Capital through Teaching-learning Activities

Educational and training programs in rural areas play an important role for rural development and allocative ability of human capital (Huffman, 1974). And yet, rural areas in Portugal have excluded populations that are not engaged in community or associational activities (see charts 4 and 5). For this reason, training programs need to develop educational activities to also increase empowerment and social capital within these rural areas. These training programs need to include modules in their training program that include civic education (understanding local government and social services) and social development (leadership skills). The training or educational programs need to create internship activities for these participants to gain engagement experiences while working in governmental and non-governmental organizations in their communities. They need to be motivated to become volunteers engaged in parent-teachers associations, church activities, cultural activities or local cooperative as well as sitting in on town meetings. These non-economic activities would be a part of the training programs and be supervised by the educators. In addition, these engagement activities could be followed up by various group discussion sessions of their experiences in a classroom setting.

The teaching-learning activities need to permit the participant to construct additional networks that reflect the vertical and horizontal relationships found in their local governmental and non-governmental organizations. The engagement skills in the construction of social capital should be oriented toward collective actions within the communities that they live. Local organization should be concerned with involving the local populations in an advisory capacity in order to increased community participation and construct additional social capital.

5. Final Considerations

Rural development policies in Portugal lack a holistic approach to development. They do not value or do not include in many cases the non-economic activities. The non-economic initiatives reflect a concern to build platforms and networks in these rural communities. The construction of the community platforms should involve the entire rural population. Those with unequal skills and lacking in capacities to construct synergistic social capital need to be prepared and engaged in this process through continuous rural training or extension educational systems.

The preoccupation to a life long learning process is not one dimensional, but multi-dimensional (economic, social, cultural, environmental and civic). It reflects the concern of an educational system or rural development process to increase the participation and empowerment of excluded populations in economic and non-economic initiatives. It is a “learning activity undertaken throughout life, with the aim of improving knowledge, skills and competencies within a personal, civic, social and/or employment related perspective” (OECD, 2003:15).

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KNOWLEDGE ARRANGEMENTS IN THE DUTCH AGRI-FOOD SECTOR

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Keywords: Knowledge arrangement, education, social epistemology.

1. The public knowledge system and knowledge circulation in living environment and agri-food

The public knowledge system for the sector of living environment and agri-food (LEAF) in the Netherlands can be described by its “anatomy” and its “physiology”: what are the constituent parts and how do these parts interact? The parts consist of organisational entities, research institutes, brought together in one “body” called Wageningen University and Research Centre (WUR). The institutes, spread over the country in different locations, can be distinguished by their specific focus concerning domain and nature of research. Plant, animal, food, living environment and social are the five domains, whereas fundamental research, strategic research and applied research are the three types of research conducted by the institutes. There are basically two mechanisms for determining the objectives of research and for allocating resources: (a) based on societal questions and (b) based on scientific questions. Although eventually all research is considered to have societal impact, the second mechanism is meant to secure resources being allocated for research that is mainly and directly stimulated by the desire for fundamental discoveries. To let these two mechanisms work, the “physiology” of the knowledge system, resulting in desired outcomes, needs policy objectives, public funding and co-operation with societal stakeholders.

The Dutch LEAF knowledge system is strongly affiliated with the Ministry of Agriculture, Nature and Food Quality (ANFQ). All research institutes in the LEAF-sector receive a substantive and long term funding from ANFQ. Additional public funding for fundamental scientific research is available and subsidies from the European Commission and other international bodies are used as well. Apart from that, co-financing from the private sector is stimulated by the government and vice versa, private research in collaboration with public means is encouraged if it is in compliance with public policy.

Education in the LEAF-sector is considered being part of the knowledge system. This sector in The Netherlands has 15 educational institutes for (pre-)vocational education, 5 institutes for education in applied sciences (including teacher education), 1 university. Total enrolments 74,200 (2007). For general educational developments the educational institutes are organised in accordance with the regulations of the Ministry of Education (OCW 2008). However when it comes to knowledge content concerning LEAF-issues, the Ministry of ANFQ is expected by politics to be engaged. Apart from money transfer for regular developments, roughly € 50 million yearly from the ministry’s budget is available for content-related developments in so-called “green education”. The reason for the ministry to be committed to green education is twofold: (1) educating young people to get qualified and competent entrepreneurs and employees, (2) helping knowledge to circulate between research and practice. The first justification is related to the traditional function of education. The second one is less traditional but rapidly emerging as it gets much attention of policy makers (with reference also to the EU Lisbon strategy), representatives of the LEAF-sector and school administrators. Partly, the activities in field (2) can be compared with what extension used to focus on. As extension, however, no longer is part of the public knowledge system in the Netherlands, both research and education are filling part of the missing link that arose after extension was vanishing from the public scene.

The knowledge circulation that we focus on in this paper uses as point of departure that both researchers and practicing professionals possess knowledge that is of value in their own context as well as in the context of the other party. From exchanging these distinctive knowledge elements between researchers and practice both

parties can benefit (e.g. see Warner 2008). These exchange processes of knowledge circulation however are not simple, therefore policy makers are looking for a way to use the expertise in the educational institutes to improve circulation of knowledge. The concept that is developed to analyse and structure knowledge circulation is called knowledge arrangement.

Before going into details about knowledge arrangements, we will in the next section first draw a brief sketch of changes in the Dutch LEAF-knowledge system during the last years. Subsequently we will explain what is currently considered to be a vital knowledge system and how knowledge arrangements should fit in. Finally, before winding up, opportunities and impediments of knowledge arrangements will be looked at.

2. Some recent developments in the Dutch LEAF knowledge system

Until mid 1990's the intertwined subsystems of research, extension and education, the REE-triptych, constituted the backbone in the anatomy of the public knowledge system. However, the once natural relationships between the subsystems seemed to become less obvious due to a couple of developments.

- *Governance*: societal opinions about the role of the government changed from a government being responsible for the process to a government responsible for the result (from how to that). This led to independent, more autonomous public institutes, subject to market forces. Accountability and result orientation are now characteristics of the knowledge system. Extension services became a commercially driven private institute. Research and education as well should operate more market-driven. What was expected of the different actors in the knowledge system changed, their functions, roles and objectives.
- *Entrepreneurship*: farmers were more and more forced to exploit their entrepreneurial attitude towards growing market parties in the chains of agri-food. The production and distribution system changed and agricultural entrepreneurs had to look for innovations and expanding market opportunities. A further differentiation in the need for knowledge was the result. Research and educational institutes had to respond to the new requirements of the sector.
- *Epistemology*: scientific knowledge of nomothetic nature on the one hand and practical knowledge of idiographic nature on the other were considered as necessarily complementary for successful developments in the LEAF-sector. Awareness of explicit and tacit elements in each of these two makes a linear approach of knowledge transfer no longer appropriate for the relationships between research and the sector (Knickel et al. 2009). Focusing on the social contours of knowledge is recognised as an essential feature of knowledge exchange activities (Jacobson 2007)
- *Transitions*: the ongoing developments in the LEAF-sector that were resulting in gradually increasing yields and improved food quality came to a halt when more evidence of the impact of harmful agricultural production on ecology and environment became known. Animal welfare, sustainability, pressure on ecology, rural development etc. are nowadays considered as issues that call for a transition of the sector. Knowledge for such changes requires institutions that can signal the necessary changes and that are able to collect the expertise and to organise social learning.

As a result of these developments renewed attention was made visible for the relationship between knowledge, learning, innovation, entrepreneurship and sustainability. The from now on private extension services competed with advice departments of private business. Research institutes and the university got more interested in so-called beta-gamma approaches of societal issues. Research became more geared towards demand from society as a whole and from the LEAF-sector in particular. Three key qualities of the new knowledge system (research and education from now on) were identified. The knowledge system was to be dynamic, vital and sustainable. Dynamic here means that there is space for new initiatives, new connections within and outside the knowledge system, different partners in changing composition. Vital here refers to a strong anatomy and an adaptive physiology adequate for reacting on changing circumstances. The third characteristic of the knowledge system,

sustainable, here implies that initiatives do not stay dependent of public funding, that stakeholders keep committed to contacts with knowledge institutes and that knowledge generated in multi-stakeholder exchange processes is accepted by the distinct parties.

Because the REE-triptych vanished there was a need for education and research in the LEAF-sector to collaborate more closely, expecting that the public knowledge system could be made more dynamic, vital and sustainable. The question was how; the answer was by constructing knowledge arrangements.

3. Knowledge arrangements, a closer look

Knowledge is recognised as an important resource for business developments and for commercial and social innovation, as well as a source for providing answers to societal questions. As knowledge is a multifaceted concept there is no simple relationship between societal issues and the function and role of knowledge. The once popular linear approach from research providing answers to practice using the research outcomes has been replaced by knowledge chains and cyclic knowledge models. A knowledge arrangement, as it is used in the Dutch public knowledge system, considers these changing opinions when bringing together stakeholders from research, education, business and living environment (Lans 2006).

An arrangement starts with a societal issue that is shared as such by stakeholders and where knowledge is a topic that can contribute to “solving” the issue. If stakeholders share values, opinions, ideologies and interest, then a common activity can begin for finding knowledge, or let knowledge circulate among participants or for co-creating new knowledge. If there are no shared values but merely a common awareness of an issue with possibly conflicting interests, then the arrangement can be used to exchange knowledge for better understanding the issue. So a knowledge arrangement can be characterised by (a) the development and (b) the utilisation of knowledge. As to development we distinguish existing knowledge that can be transferred from one stakeholder to another or existing knowledge that circulates between stakeholders or new knowledge that is co-created by the stakeholders. The utilisation can be of an instrumental nature, it can be conceptual or for legitimising the attention for a particular societal issue. A further characterisation of an arrangement, apart from the above mentioned epistemological considerations, is found in the stakeholders that are involved, in their contribution to the arrangement and in their commitment.

For the ministry of ANFQ the challenges of the public knowledge system are, among others, dynamic, vital and sustainable. Why are knowledge arrangements attractive and how do they contribute to these three challenges?

- **Dynamic:** In the European Union there is a strong belief in the effectiveness of demand and market orientated approaches even in domains where until recently market forces were not considered appropriate. Applied to knowledge arrangements, demand orientation implies that public knowledge is being generated only if there is a “committed need”. The trigger for allocation of research resources originates from societal questions and should be obvious by the different stakeholders involved. It is not the academic disciplines that lead the arrangement’s activities but the societal dynamics are being reflected in the knowledge arrangements.
- **Vital:** The once so strong backbone of the public REE-triptych is replaced by a research-education connection that is “under construction”. The educational system in the LEAF sector by its very nature always had the assignment to pass on the memes of agriculture to future workers in the sector. Well-educated offspring after all is necessary for a vital sector. The vitality of the knowledge system is strongly supported by the involvement of students and teachers in dealing with contemporary topics. Future workers, employees and entrepreneurs, learn to appreciate the benefits of the knowledge system. The advantages are twofold. Off class room learning environments fit perfectly well in competence based education and are inspiring for students and teachers as well. Secondly, students reinforce the research capability of the knowledge system.

- Sustainable: Concerning the societal assignment of the ministry of ANFQ to take care for a durable and competitive economic sector, to look after secure and safe food conditions and to assure good conditions for diversity in nature, a continuous relationship between the sector and the knowledge system is considered crucial. Stakeholders that are interwoven with societal questions and with the knowledge system by participating in knowledge arrangements might be expected to maintain and sustain the mutual relationships that are essential for a sustainable position of the knowledge system in society.

4. Impediments and opportunities for knowledge arrangements

The configuration of knowledge arrangements has consequences for the role of advisory work. After the agricultural extension services were privatised in The Netherlands, and applied research became more market driven, communicative competence of research institutes was crucial to reach practice. Competence orientated developments in education also increased the need for schools to collaborate with practice. It seems obvious for research and education in LEAF, both affiliated with the ministry of ANFQ, to co-operate. This does however not mean that co-operation is easy and that all parties immediately gain from it. The collaboration is growing and improving between research and education and opportunities are becoming visible, however there are impediments of structural and operational nature.

Opportunities:

- Lowering thresholds. Students can make the contact between stakeholders outside and within the knowledge more easy.
- Extending capabilities. Capacity of research is limited; students and teachers can extend the research capability.
- Regional representation. Schools for vocational and professional education are spread over the country with obvious regional roots. Issues of agriculture, landscape, environment and rural development need regional involvement which schools can provide.
- Improving competencies. In competence based education authentic learning environments are needed for developing the intertwined faculties of knowledge, attitude and skills. Collaboration between students, teachers, entrepreneurs, government and students offer those inspiring learning environment.

Impediments:

- Advice competencies. Stimulating the application of knowledge in practice and coaching of knowledge users, even if those users were involved in knowledge creation in arrangements, is a competency that needs a lot of experience. Teachers, students and researchers need additional training for improving this competency
- Timetables. The school's curriculum and timetables make most of these institutes rigid with less chance to respond quickly and adequately to arrangements' needs.
- Management support. Executives and managers of both research and educational institutes have their own strategic agenda's. To put it simply schools want more students and research wants more, tangible, output. Success of collaboration in knowledge arrangements need permanently to be brought to the attention of executives.
- Image. Schools have an image gap to be bridged. There is a widespread assumption that they lag behind in awareness of current research knowledge and in connection with practice.

5. Conclusions

Knowledge arrangements are a promising development for closer co-operation between research, education and society. Because of their country-wide dispersion, educational institutes in The Netherlands have the opportunity to become regionally embedded knowledge centers. The quality of education can benefit as well as the accessibility for “green stakeholders” of research outcomes.

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EXPLORING THE LANDSCAPE OF GREEKS' STOCK-BREEDERS 'TRAINING NEEDS

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Keywords: Stockbreeder's training, training needs, training subjects, willingness to train.

1. Introduction

Livestock industry in Greece is characterized by numerous features, including: a) the, often, extensive exercise of livestock, b) the transition of farms together with the methods of exercising the profession from one generation to the next, c) the recent entry in the industry of young farmers who do not have prior contact with the performance of livestock d) the entry of new breeds of animals that vary widely and have different management requirements of the breeds being fed today and e) the extremely low level of farmers' involvement with education (Folinas and Lioutas, 2008). In this eccentric landscape, farmers' training becomes the foundation for survival and growth of the industry. The design of the training of livestock producers must recognize the importance of the particularities of each sector before setting the framework within which to interfuse the transmission of knowledge and information, and also seek the involvement of the participants in the training process.

2. Aim of the study

In the constantly growing range of competition prevailing in the market of food, information and scientific support to the rural population has become a key production factor (Siardos and Lioutas, 2008). In this context, providing a form of education that meets the needs of producers are expected to improve both the conditions for exercising the livestock and the quality of products.

According to Kilpatrick (2000), educators should design training programs so as to encourage opportunities for interaction and sharing of knowledge and skills. One of the principles of an effective transmission of knowledge is mutuality of responsibility in defining goals, planning and conducting activities that are based on the real needs of participants (Burns in Roberts, 2000). It is therefore a challenge to extension program planners to make their programs relevant to farmers by conducting real need analysis and make program planning participatory (Aiayi, 2006). Learning must build on previous knowledge and experience. There is an expectation of respect for the learner and their rights to set their own goals and outcomes (Roberts, 2000).

Designing a training process, the search for the real needs of participants is essential. According to Halim and Mozahar-Ali (1998), the first stage of training, the planning phase, encompasses several activities, two of which – training needs identification and curriculum development - are very important. As the authors argue, curriculum development is the most important part in a training program, after a need for training has been identified.

The main purpose of this research is to investigate the training needs of sheep-breeders, goat breeders, cattle-breeders and pig-breeders in central Greece. As secondary objectives mentioned: a) delineating the variables that significantly influence farmers' willingness to train and b) exploring the factors' weight in affecting farmers' willingness to train.

3. Methodological approach

The data collection was carried out with the questionnaire prepared specifically for the purpose of study. The part of the questionnaire presented in this work include questions about: a) producers' demographic

characteristics, b) data relating to the ranching operation, c) satisfaction or disappointment from income and social prestige enjoyed and d) seventeen proposed training subjects, which were invited to evaluate. Likert type questions on a four-point scale were used to measure the degree of interest shown by each farmer towards 17 training objects. Satisfaction from income and social prestige also measured using the same form of questions.

The questionnaires were completed by personal interviews with stock-breeders in the Central Greece. The interview process lasted six months from June until November 2007. As a sampling unit used a person from each stockbreeding family, whether that member was the leader of the farm or not, as the object was to explore training needs of all those involved in the production of animal products and not only of the heads of farms.

After a random sampling procedure, the total sample amounted to 117 farmers. The distribution of the total sample in four productive sectors is as follows:

- 31 (26.5% of total sample) sheep-breeders (S-b)
- 27 (23.1% of total sample) goat-breeders (G-b)
- 35 (29.9% of total sample) cattle-breeders and (C-b)
- 24 (20.5% of total sample) pig-breeders (P-b).

The data collected processed using SPSS 17.0 for Windows. Binary analysis was carried out using Spearman's correlation coefficient (referred in the text as "rho"), one-way ANOVA, Kruskal-Wallis and Mann-Whitney tests.

A model of categorical regression (C.R.A.) was created to investigate the relative importance of each factor that influence stockbreeders' willingness to train. The goal of categorical regression with optimal scaling is to describe the relationship between a response variable and a set of predictors. Model's explanatory power indicated by the R^2 value. Regression coefficients (beta) and Pratt's measure of relative importance were reported in order to express weights of independent variables.

4. Results of research

For the purposes of this survey, 27 variables used. Of these, 17 refers to the scoring of training subjects proposed to farmers in the sample. The categories for the remaining 10 variables, and percentages of responses for the categories shown in Table 1.

The majority of the sample are men, whilst a striking feature is the producers' low educational level. Kruskal-Wallis test showed no statistically significant relationship between stock-breeding sector and variables: "gender" ($\chi^2=0,354$, $p=0,951$), "age" ($\chi^2=0,376$, $p=0,945$) and "education" ($\chi^2=5,897$, $p=0,117$), therefore, the stock-breeding sector does not affect the statistical relationships between the above variables and the rating of the proposed training subjects.

Variable: "social response", refers to the perception of farmers on the vision of society towards their profession and reflect the social prestige that the farmer believes that enjoys. The participation in a training program correlates with the variable "social response" ($\rho=0.213$, $p=0.021$), i.e., the probability that a farmer has completed a training program is higher in people with a high degree of frustration by the social prestige it offers livestock, as a profession.

The perception that livestock is an occupation that offers a low social status is more intense in individuals of higher education ($\rho=-0.320$, $p=0.000$) and there appears to be related to any of the other demographic characteristics. Furthermore, Kruskal-Wallis test showed that this perception is related to the production sector ($\chi^2=10.244$, $p=0.017$) and Mann-Whitney tests showed that the cattle-breeders consider social response enjoyed positive, compared with the other three stock-breeders sectors.

A list of seventeen subjects that could be put into a training program given to farmers and they were asked to rate each of them using a four-point scale (Table 2). The scoring of the subjects showed that:

Table 1. Research variables (except training subjects)

Variable	Category	Percent %	Variable	Category	Percent %
<i>Gender</i>	Male	82.9	<i>Income satisfaction</i>	At all	39.3
	Female	17.1		Low	23.1
<i>Age</i>	<20	4.3		Medium	27.4
	21-30	11.1	<i>Social response</i>	High	10.3
	31-40	21.4		Negative	25.6
	41-50	27.4		Rather Negative	19.7
	51-60	21.4		Neutral	40.2
	>61	14.5		Rather Positive	9.4
<i>Educational level</i>	Primary school	49.6		Positive	5.1
	High school	24.8	<i>Communication with veterinarians</i>	Every 15 days	42.7
	Lyceum	20.5		Every month	35.9
	IVT ¹	5.1		Every 3 months	19.7
	S-b	26.5		Rarely	1.7
<i>Stock-breeding sector</i>	G-b	23.1	<i>Willingness to train</i>	At all	12.8
	C-b	29.9		Low	35.0
	P-b	20.5		Medium	37.6
				High	14.5
<i>Participation in a training program</i>	Yes	6.0	<i>Workers employed in ranch enterprise</i>	Numeric variable	
	No	94.0		Mean: 3.31	

¹: Institute of Vocational Training

- For the groups of sheep-breeders (S-b) and goat-breeders (G-b), the most interesting topics were evaluated: “tackling diseases”, “oestrus’/births’ synchronization”, “crossing systems” and “preventing diseases”.
- In the group of cattle-breeders (C-b) obtained the highest scores of the subjects: “waste management”, “tackling diseases”, “preventing diseases” and “feeding animals”.
- Owners of pig production enterprises (P-b) are more interested in issues: “improve carcass quality”, “waste management”, “genetic improvement” and “EU programs for livestock”.

Regarding the demographic characteristics found that:

- Younger age producers have higher degree of interest in the topics: “crossing systems” ($\rho=-0.559$, $p=0.000$), “oestrus’/births’ synchronization” ($\rho=-0.248$, $p=0.000$), “artificial insemination” ($\rho=-0.226$, $p=0.014$), “genetic improvement” ($\rho=-0.314$, $p=0.001$) and “waste management” ($\rho=-0.209$, $p=0.023$), while increasing age and increases and rating issues: “use of hormones/growth promoters” ($\rho=0.364$, $p=0.000$), “improving carcass quality” ($\rho=0.287$, $p=0.002$) and “preventing diseases” ($\rho=0.456$, $p=0.000$).
- In higher education there is a higher scoring issues: “feeding animals” ($\rho=0.368$, $p=0.000$), “ration’s formation” ($\rho=0.291$, $p=0.001$), “crossing systems” ($\rho=0.354$, $p=0.000$), “artificial insemination” ($\rho=0.369$, $p=0.000$) and “stock-housing conditions” ($\rho=0.407$, $p=0.000$), while reducing the level of education in line with the increase of scoring on: “preventing disease” ($\rho=-0.247$, $p=0.007$) and “use of hormones/growth promoters” ($\rho=-0.372$, $p=0.000$).
- The Mann-Whitney tests showed that women give higher scores on: “use of modern technology” ($U=596,500$, $p=0.005$) and “products’ disposal” ($U=663,500$, $p=0.021$) compared with men farmers.

Moreover, it was noted that producers who prevailing communicate with veterinarians are more interested in the topics: “artificial insemination” ($\rho=0.191$, $p=0.039$), “genetic improvement” ($\rho=0.522$, $p=0.000$) and “EU programs for livestock” ($\rho=0.408$, $p=0.000$).

Table 2. Training subjects’ mean scores

Subject*:	Stock-breeding sector			
	S-b	G-b	C-b	P-b
Tackling disease	3.68	3.67	3.71	3.25
Preventing disease	3.39	3.37	3.57	3.04
Feeding animals	2.81	2.85	3.57	3.25
EU programs for livestock	2.77	2.85	3	3.33
Waste management	2.26	2.15	3.71	3.5
Crossing Systems	3.35	3.37	2.86	3.08
Genetic improvement	2.68	2.67	3.14	3.5
Ration’s formation	2.16	2.3	3.14	3.21
Products’ disposal	3.16	3.07	2.43	2.29
Use of modern technology	1.97	1.93	3.43	3.17
Use of hormones/growth promoters	2.42	2.56	2.57	3
Improve carcass quality	2.13	2.15	2.14	3.79
Oestrus’/births’ synchronization	3.39	3.52	2	1.21
Stock-housing conditions	1.65	1.96	3.29	2.58
Artificial insemination	2.19	2.15	3	1.17
Forage	1.65	1.96	3.14	1.25
Managing pasture	2.61	2.52	2.29	-

* From 1: Indifferent to 4: Very interesting

Willingness to train is more intense in young people ($\rho=-0.297$, $p=0.001$), persons with higher level of education ($\rho=0.482$, $p=0.000$), respondents having previously attended a training program ($\rho=-0.209$, $p=0.024$). Furthermore, willingness to train increases in producers who state frustrated by the income provided by livestock ($\rho=-0.602$, $p=0.000$) and is also higher in people with a high degree of frustration by the social prestige it offers livestock, as a profession ($\rho=-0.308$, $p=0.001$). One-way ANOVA test, showed that a farmer’s willingness to train increases as the number of workers employed in his enterprise is higher ($F=4.186$, $p=0.008$). This could be considered as a sign that the size of ranch enterprise affects the willingness to train.

The stock-breeding sector is significantly related with variable “willingness to train”. Kruskal-Wallis test showed a statistically significant relationship between the two variables ($\chi^2=47.359$, $p=0.000$). The Mann-Whitney tests that followed showed that willingness to train statistically increased in groups of P-b and C-b compared with the sheep and goat owners, between whom there is no statistically significant difference.

Variables related to willingness to train were used as predictors in a categorical regression model, in order to identify the weight of each variable in forecasting the dependent (willingness to train). The variables considered could explain 68% of the variance of target variable ($R^2=0.680$). The results of categorical regression further showed that the F-value is 15.474, and it is significant at 0.01 level of confidence, confirming the good fit of the model. The results of regression analysis (standardized coefficients, F-ratio, importance), are summarized in Table 3.

As table presents, regression coefficients of “stock-breeding sector” ($\beta=0.374$), “communication with veterinarians” ($\beta=0.254$), “income satisfaction” ($\beta=-0.239$), “educational level” ($\beta=0.167$) and “social response” ($\beta=-0.190$), are the highest. The above mentioned variables could explain 93% of the variation in willingness to train.

Table 3. Coefficients and relative importance of predictors introduced in C.R.A. model

Predictors	Beta	F	Importance	Importance %
Stock-breeding sector	0.374	13.837	0.332	33.2
Communication with veterinarians	0.254	5.750	0.204	20.4
Income satisfaction	-0.239	6.253	0.175	17.5
Educational level	0.167	1.125	0.118	11.8
Social response	-0.190	2.415	0.101	10.1
Participation in a training program	0.118	2.618	0.034	3.4
Age	-0.042	0.058	0.018	1.8
Workers employed in ranch enterprise	0.051	0.420	0.017	1.7

5. Conclusion

Although very few farmers have participated in a training program, sample show a positive attitude towards the possibility to attend in a training process. Stockbreeders' willingness to train affected mainly by the production sector, the frequency of communication with scientists and the frustration from the income provided by livestock. Educational level of producers and their perception of the social prestige that the livestock offers also form the desire to participate in a training program. The above mentioned desire could be exploited by designing curricula tailored to the needs of each branch. For the branches of sheep and goat owners, subjects about the health management of livestock and also, subjects relating to the management of animal breeding are in educational priority. The development of skills related to prevention and treatment of animal diseases is essential for cattle-breeders also. Moreover, cattle-breeders are interested in both animal breeding and waste management. For pig producers, a training program planning should emphasize in improving carcass quality, genetic improvement, waste management and to ensure the transmission of information on EU programs for livestock.

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BROKERING SUSTAINABILITY DEVELOPMENTS: A FEASIBLE OPTION FOR FOOD CHAIN ACTORS?

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Keywords: Broker, sustainable food system, food supply chain, independent actor, market.

1. Introduction

Political quest for more sustainable food systems has been expressed in western societies by high level political documents (EC, 2005; WCED, 1987), echoed in the Nordic countries by national programs for sustainable consumption and production (Getting more from less, 2005) and labelling schemes for businesses and consumers (Swan labelling for restaurants, 2006). Professional associations (ADA, 2007) and individual consumers response to sustainable food choices (Kriflik, 2006; Lea and Worsley, 2008), while efforts for sustainable catering emerge across western world (Mikkola, 2009a; Morgan and Sonnino, 2008). While sustainable food system is a goal to be achieved by a plethora of independent actors without access to compatible coordination by any one of the actors, participatory research methods have been used to induce change towards sustainable agriculture among farmers (Bruges and Smith, 2008; Ingram, 2008) as well as among farmers and other food chain actors (Barnes et al., 2009; Block et al., 2008; Friedmann, 2007; Kloppenburg et al., 2007). Pre-determined by governmental aims, the collaborative developments represent the 'policy arm', whereas the participatory developments lend themselves to promote community development and empowerment allowing communities themselves to identify and prioritize their needs (Bruges and Smith, 2008). In agricultural developments, advisors have a central role, either as experts or facilitators, to put it simply, in achieving the desired goal. This paper aims to identify new co-operation forms for promoting sustainability on the food system level. The paper elaborates the notion of a broker (Wenger, 1998) who acts as an 'in-between' of expert and facilitator as a 'trusted semi-insider' of different organizations, being able to build up orientation into sustainability by food chain actors basically economically independent of each other. The paper draws on a Finnish study of introducing organic food into public catering and offers examples of brokering in Finnish food supply chains. The results indicate that brokering offers innovative possibilities for orientating supply chain actors towards more sustainable food system. The approach expresses the current demands for ever deeper engagement with food chain actors in developing more sustainable food systems.

2. Participatory researcher's positions and roles

Sustainable agricultural practices are proposed to be complex, knowledge intensive and non-prescriptive across large variation in cultivation conditions (Röling and Jiggins, 1994, in Ingram, 2008), which calls for an operative combination of both scientific and local, indigenous knowledge. Thus sustainable agriculture is best furthered by a host of different social learning methods, of which today the most important for farmers is the use of agricultural advisors (Ingram, 2008). The advisors are positioned as commercial, independent or official actors, their roles being developed within encounters with farmers. Ingram's (2008) findings suggest, that advisors may behave as experts and powerful decision makers for farmers, as experts without influence or as followers of farmers' decisions, and finally, as facilitators integrating knowledge with farmers. In rather good correspondence, Arnstein (1969, in Hayward et al., 2004) discerns rungs of (citizen) participation from manipulation to therapy, information dissemination and consultation to partnership with delegated power and finally to control by citizens. Other social learning encounters about agriculture have taken place with researchers and citizens,

whereby the citizens have the possibility to inquire into particular scientific or production related realities, evaluate and approve their validity in terms of sustainability (e.g. Cronin and Jackson, 2004; Barnes et al., 2009).

These efforts often represent discourses towards sustainability between particular (distanced) food system actors, without being based on the food chain as the backbone of income, environment and daily nutrition, along which more sustainable food system could be negotiated. This paper describes such a project and its findings through the notion of brokering for sustainability.

3. Methodology

The participatory research project aimed at increasing the use of organic food within public catering at schools.

The organic food chosen as a food item for study was organic milk, which as an industrial, secure and safe product would suit well for schools. The volume of Finnish organic milk on the market could be easily increased since only half of it was sold organic, like in the UK (Franks, 2003). The main approach was to develop sustainable consumption, followed by sustainable production, as food chains of today are market led (Jongen and Meulenberg, 1998). The researcher of the project was "honest" (Bruges and Smith, 2008) and grounded her positioning towards sustainable food subsystem of organic milk by review of current research. The researcher invited the market actors - the processor, the public catering organisations and their customers - into a dialog about the use of organic milk (Mikkola, 2009b). This preliminary paper is based on interviews of businesses and customers, and includes organic farmer interviewed previously. Altogether one farmer representing a company of four farmers, four processing company representatives, 10 caterers of four catering organisations and five teachers in three schools were included in open-ended interviews, which dealt with aspects of sustainable use of organic milk in public catering. Additionally, self-ethnography as presented by Alvesson (2003) was used to extract data from electronic messages and conversation with various food chain actors. The text material was transcribed verbatim and analysed for the quality of relations between the researcher and participants (Ingram, 2008) as well as actor's aims and their use of organic milk.

4. Brokering sustainability within Finnish organic milk chain

The researcher was not directly an expert in any of the business activities represented by participants, but having a long-term experience with their activities as a an environmental and social science researcher with background in vocational and polytechnic education, a trusted 'semi-insider' position was secured with 'semi-expert' role in respective organisations. Through previous social research, the organisations could be characterised as embedded in the market relations, occasionally relying on strategic networks but rarely socially overlaid networks except in the primary production (Mikkola, 2008).

The researcher also agreed about the test use of organic milk at these sites with caterers and the processor. The main 'tool' of the project was dialog, whereby aspects of sustainable use of organic milk were discussed with caterers at face-to-face meetings during the working days, by electronic messages, and additionally at interviews.

In the start and during the discussions with each participant separately, the researcher made her views available and listened to the others' views. Downstream actors such as institutional and particularly individual customers presented a declining understanding regarding the quality of organic milk (Hill and Lynchehaun, 2002).

Additionally, some problems were identified by caterers in the dialog with the researcher in the quality of organic milk (Mikkola, 2009b). Based on dialog with caterers, the researcher clarified the sustainability status of organic milk by presenting posters at schools for caterers, teachers and pupils to be examined, depending on their interest.

The questioning and answers to questions 'moved' questions, information and explanations pertaining to them from one chain actor to the other, offering construction of 'connecting links' between actors embedded in

different positions. This zig-zag movement and communication between actors enabled increased understanding of the supply chain to the (sometimes limited) extent the caterers were able to learn about organic milk, within the often pressurized occupational environment. The relation between researcher and actors was not manipulating but inviting to dialogue, not offering visibility benefits such as labels or certificates but increased understanding about the sustainability quality of the product, not marketing but offering a trial use of organic milk at the price of conventional milk.

The organisations' strategies presented sustainability orientation, but due to various reasons, some organisations were not ready to participate in the trial. There was no obligation for the use of organic milk in catering service after the trial; however, some organisations had decided this before the trial and some did it after the trial, enlisting to a volunteer organic semi-official certification program, whereas some only used organic milk during the trial. The aim of the researcher was open regarding the use of organic milk, to be based later on organisations' own decisions; there was no 'conversion target'. Additionally, it was noted, some organisations' use of organic milk was more based on their own visibility quest than plainly 'sincere interest to use more sustainable milk'.

5. Discussion

Conceptually, a broker's position and role diverges from the one of agricultural advisors, whether they are commercial or independent actors or state bureaucrats. Wielinga et al. (2008) have described a free actor facilitating energy and connection within networks linking research, business and development. Here, free actor may be a particular person 'nominated' for that task or a person within the network known by others to fulfil that role. Broker's position comes close to the one of free actor, but it combines the practical and research based competence regarding sustainable food systems, research based commitment for that goal and independent but trusted 'semi-insider' position in terms of organizations along particular food supply chain. The characterisation is rather complex, but it brings about the 'real life' usage of research results, chain-level or systemic approach enabled by long-term confidential relations with businesses, and facilitating rather than manipulating, power or marketing edge to the building of sustainable food system. Brokering was 'sustainability marketing' without marketing, aiming at adoption of sustainable use of organic milk by encouraging construction of the quality of milk by the caterers and customers themselves, and thereby offering a rather critical than idealistic notion of organic milk. Negative constructions regarding the organic quality were valid as the customers' constructions.

6. Conclusions

The model of brokering sustainability is a systemic approach, suiting to a situation, whereby societal aims are known generically but not in adequate detail and actors responsible of implementation are independent of each other as well as without common strategic orientation. Typical features of the situation are additionally high work load and ambiguity of actors preventing them from developmental efforts for sustainability. In the cases analysed here the bottle neck for organic was the consumption rather than production, and therefore brokering was focused on institutional consumers with continuous demand. The brokering approach may prove to be useful in complex market situations such as product development, using the untapped market potential of sustainable production and upgrading the food system actors' understanding of their strategic role in sustainable consumption and production.

Although the approach may deliver the developmental input badly needed by food chain actors, it may, however, also be demanding and time consuming to implement.

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ENTREPRENEURIAL LEARNING IN A CHANGING AGRI-FOOD SECTOR: TOWARDS A TAXONOMY OF RELEVANT LEARNING ACTIVITIES

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Keywords: Entrepreneurialism, learning, horticulture.

Abstract

Where the focus in agriculture in Western Europe in the past was predominantly on the technical and managerial capabilities of the small firm owner, increasingly entrepreneurial competence is required to set up and run an agricultural business that deals with the innovation agenda of the future (Phillipson et al., 2004; De Lauwere, 2005).

It is challenging to study the complex ways in which farmers learn to adapt their roles and develop new competencies in order to exploit new business opportunities, grow, expand, diversify or internationalize their business. Nevertheless, it is not clear from literature how this learning takes place and can be best described. Only some preliminary work in this area has been done, mostly from a start-up, non agricultural point of view on entrepreneurship (e.g. Rae, 2006). Since formal education and training practices often do not sit well with work-related learning of owner-managers, insights into which learning activities shape entrepreneurial management development in small firms (such as farms) is helpful for professionals active in sector development (like agricultural extension). Especially in their efforts to design intervention strategies to foster these types of learning and for identifying new professional roles for facilitating learning (e.g. coach, assessor, consultant). Therefore, in this study we elaborated and refined a tentative taxonomy of learning activities associated with the entrepreneurial process.

This taxonomy was developed in earlier work (Mulder et al., 2007) in a specific sub-sector of Dutch agriculture, namely horticulture.

In order to investigate entrepreneurial learning in existing firms, it is important to define catch-all concepts such as 'entrepreneurial' and 'learning'. Entrepreneurial in this paper is explicitly associated with the 'entrepreneurial role' of the owner-manager, which encompassed those activities connected to 'identification and development of opportunities aiming towards new ventures, innovation or strategic renewal'. Furthermore, we took a broad view on learning. Learning can be described in terms of acquisition (skills and knowledge acquired and further developed through practical experience in the workplace) (e.g. De Lauwere, 2005) as well as in terms of participation (highlighting the situated nature of farming practice, e.g. Kilpatrick and Jones, 2003; Hinrichs et al., 2004).

Exemplary entrepreneurial learning activities from this perspective are observation of role models, personal reflection, discussion with customers and experimentation with new products (Mulder et al. 2007).

Fourteen in-depth, semi-structured interviews with innovative owner-managers of Dutch horticultural firms were carried out, using critical incidents as a starting point. The developed taxonomy of learning activities was used as a starting point for analysis. This taxonomy was complemented with an additional broad range of learning activities mentioned in educational literature. All the interviews were analysed with respect to the occurrence of this broad range of learning activities. Subsequently, this set was brought back to manageable units again. This was done on the basis of three criteria:

1. Learning activities that were incidental were left out of the final analysis.
2. Learning activities that were only mentioned a few times in very specific cases were left out, or aggregated at a higher level.
3. Learning activities which were ambiguous were left out of the final analysis. This was based upon the use of multiple assessors of a specific learning activity.

The results of this study will be described in detail in the paper. The preliminary conclusion is that there are various effective learning activities which can be distinguished and that the workplace of the agro-entrepreneur is a powerful and authentic learning environment. Extension agents in their new role as business consultants need to be aware of the learning approaches of entrepreneurial farmers to be effective with their interventions.

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CHANGING AGRONOMISTS' PERCEPTIONS AND PRACTICES VIS-À-VIS EXTENSION EDUCATION IN GREECE

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Keywords: Extensionists, extension education, sustainability, Greece.

1. Introduction

The first systematic attempt of the Greek State in implementing an integrated advisory and training system in agriculture was undertaken in 1951 with the basic aim being the re-organisation of agriculture (in production, economic and social terms) which was ruined after World War II and the following Civil War and resulted in shortages of basic food supplies. For the next 15 years (the 'golden age' of Extension in Greece), there was a massive and well co-ordinated mobilisation of extensionists who performed an educational role explicitly aiming at changing farmers' attitudes (the ideotype of the 'change agent') towards the modernisation of agriculture and, in general, rural areas. The main characteristic of their work was a missionary attitude and popular image. The problems they had to tackle, despite being severe, were relatively easily solved by means of existing technical knowledge and the introduction of new/ improved inputs. As a result, Greece attained self-sufficiency in strategic food crops by the end of the 1950s.

After the mid 60's the issues facing agriculture changed. The Extension Service was not prepared to tackle more complicated issues implying the restructuring of the sector in relation to policy and marketing considerations. In addition, the attitude of the Service towards its clients was transformed from having to work with 'peasants' to having to deal with 'farmers'. Hence, the 'change agent' gave way to the 'advisor' who provided advice, mainly of a technical nature, usually upon request. At the same time the Service, fulfilling the increasing administrative needs of the State (implementation of policies and subsidies) became largely engaged in bureaucratic tasks; extensionists were gradually transformed into almost typical civil servants working in office. The vacuum created was partially filled by private agronomists promoting all kinds of commercial inputs.

Following the accession of Greece into the EC (1981), the administrative burden of the Common Agricultural Policy (CAP) implementation was designated to the Extension Service. Although the new approach towards agricultural development required that Greek farmers had to become competitive entrepreneurs, both within the CAP framework and in view of the GATT negotiations, extensionists did not escape from their bureaucratic-administrative role. Moreover, due to the lack of an adequate institutional framework (i.e. lack of land and farmers' register), the duty of controlling the implementation of the CAP was imposed upon them. Therefore, extensionists became more than ever severely restricted vis-à-vis the provision of advice to Greek farmers; information was provided to those of the farmers who actively sought for it albeit in a rather fragmented, inadequate and inefficient manner (Koutsouris and Papadopoulos, 1998; Koutsouris, 1999).

Changes, which took place in the mid 90s, such as Ministry's divisions' restructuring, decentralisation of services and the establishment of semi-autonomous organisations for training and research respectively did not have any substantial positive effects. For example, the Service's educational function was restricted to short-term training (150-300 hours) for those eligible for participation in the EU programmes, i.e. modernisation schemes and the establishment of young farmers (R. 797/85 and 2328/91), and continues unchanged (R. 1257/99/EC) to date.

In short, the Greek Extension Service has, during the last three decades, been in a painful process of bureaucratisation leading to its absence from the rural development field. In addition, the Service's homogeneous development policy and ideology, focusing on enhancing agricultural competitiveness in the framework of

‘productivist’ agriculture, has actually been operating a limited ‘progressive farmer strategy’. Under such a mode of function the Service has not been able to provide adequate service to farmers in terms of either agricultural or rural development. This has been verified by a number of studies which attempted to explore the situation both in terms of farmers’ perceptions about the Service’s interventions and in terms of the intervention policy and practice of the Service (Koutsouris and Papadopoulos, 1998; Koutsouris, 1999; Gidarakou et al., 2006).

The aim of the present paper is to explore agronomists’ own views on extension education and their (educational) roles. Towards that end, part of the findings of a study carried out in December 2007 – May 2008 is presented and discussed.

2. Methodology

Data were collected through semi-structured interviews with two groups of agronomists. The first group (old agronomists; mean age 58 years old) comprises 10 public servants with more than 25 working years within the Ministry of Agriculture. The second group (young agronomists; mean age 38 years old; in service since 1998-2000) comprises 10 agronomists working in local authorities (6), development agencies (e.g. LEADER+) (3) or Managing Authorities (1), i.e. working for rural development but not in the frame of agronomic units as is the case of former group. Data were obtained through personal non-directive interviews and analysed following the guidelines of phenomenological analysis (Hycner, 1985).

3. Results

3.1 The ‘old’ agronomists

For the old agronomists extension education has always been their (self-evident) vocation. Before entering the Extension Service all of them thought of their task as falling within the broad area of technical support and provision of advice to farmers. Furthermore, three agronomists mentioned that they were fond of agronomy and two their origin from farming areas as important thus reflecting their conscious choice to become agronomists. Four also mentioned that their image of the profession was the transfer of the knowledge they acquired in the University to farmers. Commends such as “we had a role – we offered a lot”, “farmers were in need and I chose to become an agronomist”, or “technical support was our single task” underlie the frame of the job. Furthermore, some among the old agronomists held a broader vision of bringing change (even “a revolution”) in all aspects of rural life.

While unanimously the old agronomists refer to their working experience as corresponding to the image they held and satisfactory, at least in the beginning of their career it is clear that in the early ’80s the nature of their job starts to change; the bureaucratization of the service is a major topic of concern and disappointment for 9 out of the 10 agronomists.

All of them clearly stated that being in contact with farmers has been their major task (vis-à-vis administration) with half of them maintaining that this (“cooperation with farmers albeit with different roles”; “agronomists empathised with farmers and their problems”) is the distinctive characteristic of an agronomist’s work; therefore, their disappointment from the bureaucratic turn after the country’s accession to the EEC (now, the EU).

Their relationship with farmers is described as being friendly (6 cases) and trustful (3 cases), although in varying degrees and through various processes (from “we could sleep in the farmer’s house” to “gradually building trust, but under agronomists’ terms”). Such relationships stemmed from, on the one hand, the bad economic and socio-cultural circumstances of ‘peasants’ and, on the other hand, the passion of agronomists to help them (agronomists as “missionaries”). However, it seems that after the mid-70s this changes due to the socio-economic progress (especially in terms of education) of the rural population.

The majority (9 out of 10) of the agronomists firmly believe that through extension work farmers have had economic gains. Nevertheless, their assessment is that their contribution concerns not only economic but general/social progress (socialization, knowledge etc.). A common claim (7 out of 10) is that their influence was much broader than technical support and was based on the trust developed between the two parties. They thus have influenced in some way farmers' livelihoods and have contributed to local development. The majority of the 'old' agronomists (7 out of 10) attribute this influence to their wider educational role (i.e., teachers and mentors within a trust relationship) in the rural areas with only two stressing the provision of technical advice or the implementation of the Ministry's programmes as of outmost importance. Overall, all of them firmly believe that they have actively promoted local development.

On the other hand agronomists themselves claim that they have gained in terms of experiences, knowledge and recognition and satisfaction (especially referred to as of a "moral" nature). This is (again) contrasted with the situation after the bureaucratic turn.

Their understanding of extension education is concrete and integrated; it focused on production and thus the field, the farmer, and the village, but was not confined to it since, as aforementioned, their role was broadly educational based on trust relationships. Agronomists devoted their time in face-to-face, personal contacts out of the office (in the fields in the mornings and in the local cafes in the afternoons) with the building of friendships and trust relationships with farmers predominating. Furthermore, other extension methods are referred to as important, too: demonstration fields (4 cases), leaflets (4 cases) and articles to the local press (2 cases) and to a lesser degree films, excursions, etc. They also note the change of the nature of their work in the 80s and their confinement in the office where they are preoccupied with the distribution and control of all kinds of subsidies and grants provided through the EU programmes and projects. Furthermore, their current involvement in seminars for new entrants in farming and other interested rural youth is not considered to be substantial in educational terms but a formal procedure aiming at the absorption of the available funds.

3.2 The 'young' agronomists

On their part, the young agronomists had a rather vague understanding of their vocation when they graduated. Although the provision of advice to farmers was thought of as constituting an important job task by 6 out of the 10 young agronomists, it is not referred to as the core of their job but in three cases. Furthermore, when employed, for 8 of the agronomists the working environment was rather unexpected/new (work in office; bureaucracy). Nevertheless, after their initial disappointment, it seems that young agronomists conformed with the situation while 6 out of the 10 declared that they are satisfied.

Although contact with farmers is, in general, referred to as an agronomist's task (9 out of 10), in only two cases such an understanding corresponds to that of the old agronomists; but even in these cases there is not a sense of a 'collaborative or collegiate relationship' (Hall and Nahby, 1999). Moreover, there seems to be a lack of (formal or informal) job description clearly identifying and supporting this task; thus, contact with farmers rather stems from the everyday routine (and the satisfaction gained through communication and the provision of technical support; 6 cases) of the young agronomists.

Half of the young agronomists describe their relationship with farmers as 'friendly'. However, this differs from the understanding of the 'old' agronomists. It concerns a rather shallow level, but in 2 cases. The rest of the 'young' agronomists characterise their relationship with farmers as being either advisory (4 cases) or supportive (1 case).

Young agronomists believe that their work benefits, in general, farmers. But they refer less to economic (3 cases) and social progress (socialisation, new knowledge, new horizons, etc.) as compared to the old ones; they mostly refer to farmers' benefits in terms of communication with the carriers of innovations (agronomists; 4 cases) as well as of facilitation/support concerning administrative-bureaucratic issues (3 cases).

Young agronomists do not strongly believe that they influence farmers' livelihoods and local development. Only three of them believe that they influence farmers' lives as their older colleagues did. Another 4 believe that they exert some influence upon farmers' decisions although this is perceived as a normal procedure of the job (advice). Finally, two of them do not believe that they can exert any influence upon farmers' lives. Overall, only half of them believe that they contribute, more or less, to local development.

On the other hand, young agronomists, in terms of their gains, mainly refer to experiences and knowledge (8 cases) with (moral/personal) satisfaction referred to by 4 out of the 10 and satisfaction through 'human' communication by 3 of them.

Their perception of advisory work is qualitatively different from that of the old agronomists. Most 'young' agronomists (8 out of 10) refer to the utilisation of the economic incentives provided through the EU programmes. They seem to be preoccupied with investors; their role mainly concerns the provision of information and support relating to various investment proposals within the current agricultural/rural development programmes. It thus concerns those among the rural inhabitants with the appropriate human, social and financial capital. Contact with farmers is rather official and its major part takes place at office or, secondarily, through lectures which are scheduled according to the service's plans or needs. Face to face contacts are referred to by 3 agronomists who put on them a very high value. In addition, at least 3 express their disappointment with such a situation and their willingness to work more in the 'old fashion' (contacts with farmers in the fields, the local cafes etc.). As far as other communication techniques are concerned there is only reference to emails and pamphlets (1 each).

4. Discussion and Conclusion

Nowadays, the transformation of the Greek extension service into a bureaucratic mechanism, results in the provision of inadequate services to farmers, in a time when agriculture faces serious socioeconomic as well as environmental challenges. In parallel, similar shortcomings have been found as far as Development Agencies (preoccupied with rural development projects such as LEADER) are concerned (Koutsouris, 2008). Therefore, for example, many young rural people (18-45 years old), despite their common perception that extension and training should be provided free of charge by the state, appear to be willing to pay for advisory services (Alexopoulos et al., 2009).

Notwithstanding such a general organisational deficit, the current piece of work aims at identifying the situation from the part of agronomists. Thus, two sets of agronomists were interviewed; the first concerns old agronomists who experienced the 'golden' age of extension as agronomists working for the Greek extension service while the second concerns 'young' agronomists working in municipalities and development agencies for the last 10 years. Interviews' analysis shows that the old agronomists (still) praise their broad educational role made possible through the establishment of close relationships with farmers and their contribution in bringing about change and local development; they, thus, feel extremely annoyed with the bureaucratic turn of the service. On the other hand, their younger colleagues are, rather gladly, confined to the provision of techno-economic advice to clients without great expectations that such interventions may bring about substantial change. Therefore, differences as far as the understanding of the aims and the methods of an agronomist's job occur between the two sets of agronomists examined.

Such a change in the perceived role(s) of agronomists further aggravates the situation. In a time where sustainability becomes a major topic Greek agronomists do not seem to be ready to undertake the difficult task of transforming agriculture and contributing to rural development. The issue of sustainability requires the development of new conceptual frameworks and modes of operation. Among others, sustainability involves knowledge of locality-specific systems, appreciation of local knowledge, experimentation with and training of farmers, highly skilled facilitators, etc. (see, for example: Vanclay, 2004). In these terms, there is a draw back

when young agronomists are compared to the older ones. To put it in a nutshell, the research findings presented here raise serious questions for sustainable agricultural and rural development in Greece and the (tentative) role of agronomists. The latter may owe to various reasons, including the role of higher agronomic education (Koutsouris, 2008b). Further research is thus needed to identify factors affecting agronomists' perceptions on adult education and extension (Rogers, 1993) and examine the role of structural factors (extension service organisation and policy) in agronomists' work. In this sense, through the examination of structure and agency, the actual and tentative roles of agronomists in sustainable development will be delineated.

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SMALL FARMERS IN DEVELOPING COUNTRIES: LOW ADAPTATION CAPABILITY TO MARKET OPPORTUNITIES AND PRICE VOLATILITY

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Keywords: Small farmers, price volatility, food security, developing countries.

1. Agricultural perspective in the coming years

Supply and demand - During the triennium 2006-2008, a series of macroeconomic elements, acting simultaneously, contributed to drive up the demand for agricultural commodities. In the long-term, in order to feed the World by 2050, agriculture should double its today's harvest according to FAO (2008). At the same time, urbanization, the expansion of transport infrastructures and other conversions to non agricultural use are reducing the availability of productive land while soil degradation, namely pollution, soil erosion, soil salinity, etc., are depleting its quality worldwide. Water, another basic input for agricultural production, is also going to be relatively scarcer. Together with the rationalization and reduction of waste and over-consumption, enhancing productivity per area unit and per water unit is the only available way out. Nowadays, compared to the 3 to 6% of the green revolution (1960-1980), productivity enhancement decreased to 1-2% per year mainly due to the setbacks in public and private investments in basic and applied research on agricultural genetics (Pogna, 2008).

During the past decades, developing countries have shown an even lower dynamism in terms of agricultural production. Many countries increased, instead of reducing their dependence on imported food. In fact, while the recent high food prices stimulated a rapid growth of food production, especially cereals, the bigger share of the extra production came from developed countries (+10%) compared to developing countries that experienced a mere 1% growth on average. While farmers in developed countries recorded historical income records (Schnepf, 2008), a very different scenario has been observed in developing countries. Small farmers demonstrated to have limited capability to benefit from a better economic environment.

Price volatility - During the period 2006-2008, a series of short-term elements made prices of agricultural commodities skyrocket. From the second half of 2008 prices came off their peaks. In fact, some of the short-term factors involved in the soaring were suddenly reverted by the economic slowdown. The impact of the above-mentioned short-term factors produced high variability in commodity prices, driving the volatility index up and dramatically reducing the futures market predictability both in the short and long term. According to OECD-FAO (2008) volatility will remain very high for the coming years and it will be the most important market concern for farmers and policy-makers.

High price volatility is an important risk factor for farmers. High prices can promote new investments, but an unexpected fall in selling price can increase financial exposure of the enterprises. In a very volatile market occurrence, long-term investments are highly hazardous and dynamic farmers are more exposed to risks. Furthermore, due to the low elasticity of supply and demand of agricultural commodities, equilibrium in the market could only be achieved through an anti-cyclical set of public or private policies. In order to cope with the effects of volatility, public institutions need to support farmers through a multi-track approach, namely regulation, investment and extension.

Through the adoption of a set of specifically tailored policies, public institutions could contribute to reduce the price volatility or to cope with its negative effects. On the other hand, public information and extension services can provide a valuable set of tools to help farmers to take strategic and tactic decisions. Then, again, long-term market trends require an adaptation of the in-farm organizations in order to cope with upcoming challenges. To

respond to those challenges, farmers need a solid technical backstopping to be provided through technical assistance and extension services.

Climate change - Severe crop losses would be more frequent in the next decades with food availability potentially rapidly decreasing at regional and local level. Food insecurity could be exacerbated by the changing ecological conditions foreseen by the IPCC (2007). Climate change would affect more severely people and communities with little capital availability, especially those living in coastal regions or in particularly sensitive ecological areas. Adaptation and mitigation are becoming necessary measures to be implemented with expansive planning and requiring high-level knowledge and managerial skills both at policy-making level (national and local) as well as within the farms. Farmers, including small ones, should play an important role to guarantee environmental (agro-ecosystem sustainable management, CO₂ capture, management of hydrological basins, soil protection, etc.) and economic services (food and non-food agricultural production). Small farmers too often adopt traditional agricultural techniques and are usually unwilling to use new technologies. Agricultural extension, closely connected with a public investment program, is the only tool available to facilitate the adoption of a successful mitigation/adaptation strategy to climate change. The inclusion of small farmers in the overall strategy is deemed necessary not only because a big share of world poor belong to that category but also because the success of any initiative requires their full and effective involvement.

2. Vulnerability

During the credit crisis of the eighties, heavy-indebted countries were forced to raise production of export-oriented commodities, including agricultural ones. The rapid increase of commodity production smashed international prices, with a perverse effect on agricultural competitiveness and on the capability of those countries to pay the debt back (Toussaint, 2008). This context had also a heavy environmental and social impact, especially on poor countries. Agricultural inputs (land, water, etc.) were hijacked towards the production of cash crops and farmers lost the capability to produce food crops and feed their countries, increasing the dependence from cheaper (or in some cases received as food aid) food imports. The result of the process was the progressive reduction of food sovereignty in many countries and the rising vulnerability to food insecurity, nowadays worsened by the highly volatile market conditions.

Small farmers in developing countries can be divided into categories, depending on the land tenure, the size of farms and the percentage of their revenues directly derived from agricultural activity. Since the information on small farms is relatively erratic and criteria for classification still controversial, we adopt the methodology proposed by FAO-BID (2007) that divides small farmers in developing countries into three groups:

- i. Market Related Small Farmers (MRF),
- ii. Small Farmers in Transition (SFT) and
- iii. Subsistence Agriculture Farmers (SAF).

The first group can generate enough income to cover family needs with its primary activity. MRFs have at their disposal good quality land and have direct access to local markets or to retailers. MRFs have also access to technologies, capital and agricultural inputs. The farm produces an extra margin - thanks to the extra product sold to the market - that is directly reinvested into the agricultural activity. Families belonging to this group are not usually poor nor extremely poor and are net food producers. The second group is characterized by access to medium quality land and enough food production to satisfy family needs. Farmers are not able to generate any extra product and are, therefore, not able to create assets available for investments in agricultural production.

They have limited or no access to modern technologies and inputs. Farmers belonging to this group are in a vulnerable situation since dependent on public investment to access credit and technologies or to reach the market. They are considered in transition because public assistance and social help can provide basic start-ups to

transform them into MRF. The third group includes those very poor farmers whose income is only partially originated by in-house agricultural activities and whose primary production is mostly used for self-consumption rather than commercialization. Farmers have limited access to a usually low or very low quality land. SAF families collect additional revenues from activities outside the farms, related or not to agriculture. They have also no access to credit or technologies and are usually net food buyers.

Those three categories are very different in terms of susceptibility to food insecurity and to price volatility. MRF have a direct and consolidated linkage with the market and therefore their revenue is highly affected by price volatility. They can benefit from higher prices of goods at consumer level only when higher production costs do not exceed extra returns. In fact, recent soaring prices of agricultural products have been accompanied (or anticipated) by an even bigger increase in agricultural inputs and energy costs eroding the income of farmers, especially those who have low negotiation capacity vis-à-vis the agriculture service providers and input dealers.

Moreover, higher input prices, together with limited access to credit, reduce the small farmers' capability to buy fertilizers and, thus, to enhance their yield under favourable market conditions. Furthermore, a positive effect on MRF incomes depends very much on the market structure. Distribution and retailers control the market of Agricultural commodities. Those categories have bigger negotiation power and are in the position to intercept a big share of extra-margins, limiting the possibility for higher prices to trickle down to farmers. On top of that, SAF are often net food buyers and, therefore, higher prices mean that a higher share of their income should be allocated to buy food. For that reason, poor SAF are especially exposed to prices volatility because they already spend a big share of their income (50 to 80%) to buy food. The contemporary occurrence of high prices for food and agricultural inputs would reduce their already modest capacity to buy fertilizers, affecting their productivity, their agricultural income and, thus, their food security status.

3. Agricultural long-term investment

The agricultural sector, unless a clear political will emerge, could be severely affected by the overall economic situation. According to FAO (2008), from 1984 to 2005 agricultural investments globally decreased, both in terms of percentage over the international cooperation (from 17% to 3%) and in overall value, from 8 billion US\$ a year to 3,4 US\$ billion a year. Public investment - both in agricultural research and extension - has also shrunk in the last decades. In Latin America the overall public investment in agricultural research and extension decreased between 1985 and 2001 from 1.648 to 1012 million US\$ PPP (-38,6%) (see Tab. 1). The largest countries in the region, Argentina, Brazil and Mexico reduced their public investment by 33,6%, 74,8% and 42,9% respectively. In Sub-Saharan Africa extension services are usually very weak or non-existent, while in other developing countries (e.g. Paraguay, Nicaragua, Guatemala, etc.) private services have partially or completely replaced public ones. Private extension services are, however, demand driven and oriented to big farms and export-oriented crops, which are able to pay for the costs of the extension, while public extensions dismantlement has already seriously affected small farmers and they would be even more affected in case of further cuts in public expenditure.

Given the unusual condition of food crises and economic slowdown, several international institution (IFPRI 2007, (ECLAC-FAO-IICA, 2009) are calling for a new era of public investments in the agricultural sector where extension services are the key public good to be provided to sustain the agricultural sector. Investments should be tailored on small farmers for the following reasons: i) the adoption of already available technologies would have a very important effect on them compared with modern agriculture in the developed world and ii) the environmental impacts required to enhance a low productive yield are less than those produced by increasing the yield of a European or northern American modern field.

Table 1. - Public expenditures for R&D and Agricultural Extension in Latin America and the Caribbean (LAC) (Millions US\$ PPP 1995 per year)

Country\Year	1985	1989	1993	1997	2001
Argentina	167,026	127,886	187,726	156,572	110,789
Brazil	475,252	865,879	561,754	13,934	119,684
Costa Rica	72,262	50,974	33,429	40,046	42,954
Mexico	744,414	383,976	379,335	313,212	424,666
Total LAC	1648,024	1628,134	1382,646	746,246	1012,725

4. Institutional enforcement of the extension system

The enhancement of productivity and competitiveness of small-scale agriculture in developing countries is a key strategy for a new twice-green revolution. But small farmers, for a long while, lacked investments in public goods and are now exposed to new risks requiring better technologies and adaptation capabilities. Small farmers, especially SAF, have limited capabilities to share the costs of extension, because of their weak competitiveness.

Public investments are the only chance for those small producers to improve their capabilities and to access services and infrastructures while enhancing their competitiveness. Export-oriented countries, benefiting of higher commodity prices, can invest part of the extra margins to fund extension in agriculture to reduce their exposure to further food supply shocks. On the other hand, Low-income food-deficit countries (LIFDC) have limited human and financial capability to fund the strengthening of public extension systems and, thus, international cooperation - through international technical assistance and budget support - should provide the resources required to strengthen farmers. International aid should contribute to provide assistance to small farmers by reinforcing public extension services in order to ensure the enhancement of long-lasting institutional assets within the countries.

5. Conclusion - Knowledge requirement within the new scenario

Nowadays, small farmers are more exposed than ever to the negative effects of uncertainty, since new risks have risen. Mitigation of climate change effects requires good coordination in adaptation strategies and can only be achieved through the adoption of new practices specifically designed for the expected scenarios. Moreover, rising market unpredictability requires a new set of information and managerial approach. Small farmers should be enabled to contribute to poverty reduction and to cope with the challenges of climate change, but, to do so, what they really need are more and better public investments, linked to enhanced technical and managerial skills provided through accessibility to high quality information and extension services. These investments are required to contribute to secure two strategic targets: i) enhance the capability of agriculture to respond to a growing demand for food and non-food commodities in a sustainable way, and ii) contribute to poverty reduction and to the achievement of the 1st Millennium Development Goal, namely the eradication of hunger.

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THE HOUSEHOLD WATER COLLECTING AND PURIFICATION - KEEP CLEAN BALTIC SEA

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Keywords: Consumer, nature, landscape, water cleaning.

1. Introduction

Purpose of this presentation is to introduce the activity of consumers to participate on their part to keep clean the water of Baltic Sea, and the evaluation of media activity during spring time 2009.

In Finland people are very keen to do their personal best in their everyday life. The administration in Finland has created the rules and laws for everybody in big but sparsely populated Finland to participate that environmental issue - keep clean Baltic Sea. In the year 2014 every household must collect the waste water to centralised cleaning purification before let it back to environment. (Ympäristö, 2009) The problem might be to tell to the ordinary people how to realise what and how to do that. Problem is as well to motivate the rural people to accept that rule. It sounds ridiculous to collect waste water from the one or two person households to purificate in the middle of nowhere far from the lake or river. Even the news paper Maaseudun Tulevaisuus wrote in November 2008 its opinion to correct the Act of waste water collection in rural areas.(Maas Tul.2008). This presentation is to introduce how the local and governmental authorities have begun to inform the consumers, ordinary people to react to the new act in order to clean water of Baltic Sea.

2. Water purification in role of consumer activity

At the moment in cities all water is collected to communal waste water system. The grey waters from kitchens and industry, the brown waters from toilets and rain waters from nature are mainly collected to the same system. (Promoting sustainable water recycling..., p.39)

In rural areas only brown waters must be collected to closed tanks. These tanks are widened and collected to purificate centralised. The grey waters are collected to the wells and then the waters can soak to soil as naturally rainwaters.

As all waters are systematically collected to the centralised water purification it means the demand of construct bigger water purification organisms. In Espoo, the second largest city Finland, nearest to Helsinki the capital of Finland. the communal water purification construction has to build more capacity in two years time. (Espoon Vesi 2008) It means big process with Environmental Impact Assessment and other planning processes without talking about engineering planning and social impact assessment SIA in the area for tens of years forward. The common opinions but as well synergy with the neighbouring communities because the huge process will be realised together with the taxpayers as users and Finnish government.(SITO 2008). This is huge organisation which is depending of politicians can be destroyed after next community elections of decisionmakers. (Water Our Wealth 2008, Koljonen, 2009, Reunanen, 2005)

In the areas where the rain waters are not yet be collected to communal water system the drying of soil to normal level after the rainfall can be quicker natural evaporation than with the manmade water collecting system (Ruth, 2008). Even the natural rain waters will flow to the water purification system. It is because the real waste water as grey waters will have the same tubes as rain waters. It is too expensive to construct for the rain waters different system of tubes in cities (Espoon Vesi 2008, Ruth, 2008). The water purification has become to very important role in consumers' mind.

3. The use of natural water reserves - background of investigation

There are 180 000 lakes in Finland. It means 200 000 km of coast lines of which 65 percent on the lake side, 20 percent river side and 15 percent sea side borders.(Tilastokeskus,1982) The borders are important to constructing houses, specially to summer houses. On the lake sides there were 250 000 summer houses in 1980 and in ten years the added number was 367 686 leisure time houses (Tilastokeskus, 1992). It means 40 percent of coastlines in Finland are occupied by construction. According to these statistics it is not wrong to talk about household water collecting and purification even in rural areas. Mainly leisure time homes have the sauna beside lake and the waters from kitchen and from sauna have gone direct to nature around.

It is hard to get the natural water users to realise their role to keep low lakes, thin water amounts clean. Only by collecting the waist waters. (Reunanen, 2005). Since 30 years the borders of lakes has to keep out of building. The house hold waters must have been absorbed since that long time already, as well. It is odd to follow the new fashion to build the new areas in bigger cities on coast lines and on the water as it has not been allowed long time in rural communities. (Tolvanen 1993)

In the same time the use of natural waters is not organised. In 1990s there was in the housing exhibition a project to introduce "the two way use of waters" (kaksivesijärjestelmä) in the homes. It means that the lake's natural waters and rains could use for cleaning and toilets etc, and the spring water could use for hygienic use as for food preparation. That way could save the costs in water purification. That system has not become common in Finland. (Työtehoseura, 1996).

The role of consumers in media information

The owners of the water areas are most in basic role to keep the natural waters as clean as possible

The other are the usual uses of water resources. Not only waste water but other rubbish and garbage disposal is important role in keeping waters clean. (Promoting Urban Sustainable...2008)

Baltic Sea is surrounded of nine countries. Denmark, Sweden, Finland, Russia, Estonia, Latvia, Lithuania Poland and Germany. These all countries are responsible of the water of Baltic Sea.

Baltic Sea is low and there is not that much water to change and it is not very salty to keep its water clean naturally purification by salt. The agriculture from other countries beside Finland gives their rest of fertilizers to the Baltic water. The big city of 6 million inhabitants St Petersburg in the end of Bay of Finland has not yet constructed the water purification and household refuse cleaning properly enough. The usual people, I call them, consumers are the most responsible to understand their role in cleaning and keeping waters clean. (Autio, 2009)

4. The information flow evaluation

The information flow of water cleaning is in focus. In Finland there is education systems direct in schools. The many adult education for life long learning as women's organisations Marttas, both Finnish and Swedish speaking Marthas, Pro Agria organisation with its organisation Rural Women are effective links to disseminate the importance of waste water collecting . The Finnish government has informed the communities and these organs forward in newspapers and TV the obligatory new water purification constructure to all new builders all around the country (Ympäristö 2008, Koljonen, 2009). The act of water purification is obligatory in 1st of January 2014. In that time every Finnish household must have the plan of water hygiene.

5. Discussion

The motivation to build these expensive water collecting systems might give the same time motivation and feeling of importance as key persons of global consciousness in the middle of no where in continental Finland

far from big rivers. As well it creates the earning opportunity to the rural areas where there is not many working projects available. Young and any employment possibility for work As there is work, and reasonable motivating work, the suicides of young men might become less common in lonely rural areas. They can find their importance to waters far from home. The most important are the jobs in constructing the obligatory water pipes in the countryside where there is not that much working opportunities.

In the news papers have been more and more the informative articles about waist water constructing.

The work of build the system and how to finance the project., where to get money and how the government is ready to subsidize the constructions. (Repo, 2009, Kaukinen, 2009)

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THE MEANING OF ENTREPRENEURSHIP EDUCATION FOR EXTENSION SERVICES

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Keywords: Entrepreneurship, education, agriculture, extension.

1. Introduction

The increasing globalisation and structural changes currently taking place in the economy ask for a growing need of entrepreneurship in order to meet the needs of the market (Leffler & Svedberg, 2005). Especially in The Netherlands, there are concerns about the competitiveness of the Dutch economy, mainly caused by a lack of enterprising spirit (Onstenk, 2003). Economically, entrepreneurship is seen as a source of flexibility and innovation and a key factor in job creation. But on an individual level, entrepreneurship can also serve to fulfil individual needs for personal development. Changes in society and economy is one of the reasons why agriculture is changing (Van den Ban, 2004). Agricultural entrepreneurs increasingly need to act as innovative entrepreneurs instead of farmers, thereby putting a demand on a wide set of competencies like market orientation, networking, system innovation, creating alliances, chain management and knowledge on law and rules.

These changes affect the content of extension services as well as the approach of agricultural education. Educational programmes should prepare students for entrepreneurship as a way of life merely than being 'just a job'. The content and shape of these programmes are changing towards tailor made trajectories aiming to serve each individual learner in becoming an entrepreneur. Following, for extension agents it is very important to know their 'clients' in order to provide professional and expert advice. Therefore, it can be of value for them to get more insight and knowledge on the latest developments of entrepreneurship education in order to be abreast of the background, knowledge level and motivational grounds of young entrepreneurs and to make use of this insights in further shaping extension services.

The study described here, serves an overview of good practices in entrepreneurship education. The main goal of the study was to get inspired by good examples of entrepreneurship education from other institutes and other countries, in order to improve the Dutch agricultural entrepreneurship education at institutional level.

2. Changing contents, goals and methods

Agriculture is under a lot of pressure nowadays. The (forced) developments like decreasing employment, increasing farm size, a focus on niche production, increased efficiency and worldwide competition as a consequence of globalization, ask for sophisticated support systems to advise agricultural entrepreneurs in making crucial management decisions. Farmers are not solely farmers anymore, but entrepreneurs who have to learn continuously how to approach the market and how to develop new solutions and methods. Farmers organizations can play a role in this through education and exchange of experiences (Van den Ban, 2004). Within these educational programmes, subjects like production and technologies should be elaborated with teaching entrepreneurship in a broader sense (e.g. via the competencies suggested by Man et al, 2002; see also Lans et al., 2004) and educating entrepreneurs how to make better decisions (Anderson & Feder, 2004). To support farmers with management and market decisions, extension agents should be well trained and have some

knowledge on former and existing educational programmes as it is likely that their young customers have followed these programmes.

3. Education for entrepreneurship

It can be stated that the quality of education determines the ability of farmers to compete in the market (Van den Ban, 2004). Within The Netherlands, amongst other European countries, more and more attention is paid to the concept of Competence-Based Education (CBE) as an approach for vocational education. The basic idea of CBE is that vocational education offers students a meaningful context to acquire the competencies they need for their future profession. Thereby it aims to reduce the gap between the labour market and education (Biemans et al., 2004). In this perspective, the concept of CBE is a response to the changing society reflected by higher demands which are imposed on professionals, especially for the ones just entering the market. Within CBE, students are prepared for life-long learning and thereby made aware of the importance of continuously developing their competencies, also while already working as a professional.

This also counts for students who are willing to become an entrepreneur. For these students it might be even more important to learn how to engage in continuously learning processes in order to be able to react and anticipate on developments inside and outside their enterprise. The study described in this paper shows that within and outside the Netherlands, entrepreneurship education is carried out in many different ways. This also becomes clear from the extensive survey of entrepreneurship education in higher education in Europe, conducted by the European Commission in 2008. One aspect these ways have in common is the awareness of the importance to involve the vocational field in education. Students should work with and for entrepreneurs, move away from the educational borders and be given responsibility.

Dependent on the level of the student and the goal of the course, there are many possibilities to give shape to these trajectories. Within these trajectories, it might be wise to handle a specific set of entrepreneurship competences. Several studies on competencies for entrepreneurship stressed the importance of discovering, evaluating and exploiting opportunities, when it comes to (successful) entrepreneurship. Man et al. (2002) divides sets of entrepreneurial competencies found in different empirical studies into six competence clusters, knowing: opportunity-, relationship -, conceptual-, organizing-, strategic- and commitment competencies. These competence clusters are used in the study presented in this contribution.

4. Purpose & Objective

The purpose of the study described here, was to make an inventory of entrepreneurship education in The Netherlands and abroad. By doing this, we aimed to develop a set of good practices of entrepreneurship education. Teachers and developers can in turn be inspired by these good practices to further develop their educational content when it comes to entrepreneurship themes. In addition, via these results, extension services can be informed about the present developments in entrepreneurship education.

5. Methods

The study described in this paper is conducted by a team of researchers and teachers from Dutch agricultural higher educational institutes and Wageningen University. The study had a three year term under support of the Dutch Ministry of Agriculture, Nature and Food Quality.

Subjects

The overview of good practices is based on an extensive analysis amongst higher agricultural institutes in the Netherlands (n=5), the UK (n= 7), France (n=2), Ireland (n=1), Norway (n=1) and the USA (n=1). Only the

Dutch institutes focus on entrepreneurship in the agri-food sector, the other institutes all have a broader domain. The choice of these countries is based on available research information of entrepreneurship in general and entrepreneurship education world wide as well as on statistical information like number of start ups in different countries and information from the Global Entrepreneurship Monitor. The educational institutes within these countries are chosen by doing a desk study on interesting programmes offered by these institutes and their willingness to participate in our study. In our study, we left out the MBA programmes, as these are generally well-known already (from the point of view that this study aimed to find good practices which were relatively unknown by the Dutch institutes) and merely focus on economical aspects in stead of specifically on entrepreneurship as a central theme.

Instruments

The analysis consisted of two parts. First the Dutch institutes were analyzed on their entrepreneurship education, in order to get insight in the strong and weak points of the present entrepreneurial activities. Following, the other countries were analyzed and good practices were retrieved to further reinforce the Dutch education. The criteria for calling a practice a good practice were rather pragmatic. The practices had to focus on entrepreneurship as a whole, reflect an authentic character and show elements of competence based education. The practices should be different from the regular management, finance and economy courses.

For both parts the same analysis method and instruments were used. These instruments and their objectives are mentioned in table 1.

Table 1. Methods and instruments used to analyze different parts of educational entrepreneurship programmes. The term programme is used in a wide perspective. It can refer to small courses as well as to larger programmes and trajectories.

Method and Instrument	Objective (to get information about:)	Subject
Analysis of documents via a check list (10 items)	- Content and organization - Learning activities - Assessment - Competences/skills	Documents on entrepreneurship programmes provided by the educational institute
In-depth interview with a structured questionnaire (16 items)	- Vision on entrepreneurship - Contacts with work field - Experience and perception - Goal - Strong/ weak points	Teachers, coaches and developers from the specific programmes
Group questionnaire (14 items)	- Expectations programme - Competences/skills - Experiences and perception - Strong/ weak points	Students following the specific programmes
Observation sessions with checklist (11 items)	- Physical location session - Content of the session - Roles teacher and students - Interaction between students - Steering of the students - Contact with work field - Authenticity of the context	Observing sessions of the specific programmes

6. Findings

The analysis lead to a list of 80 good practices. In several cases, the subjects of these good practices showed similarities. Eighteen themes could be recognized and the good practices were all ordered along these themes. Table 3 shows the themes which are described as practical activities which can be applied within entrepreneurship education.

Table 2. Main themes of entrepreneurship activities found at the different educational institutes of this study

Title theme	Short Description
1. Master class	An entrepreneur shares his experiences with students
2. Real Life Case	Students work on an authentic case delivered by the business field
3. Clinic	Students practice on improving specific entrepreneurial skills
4. Brain Gymnastics	Changing visions by learning to think out of the box
5. Making a Business Plan	Writing a Business Plan for a real or virtual company
6. Get Innovative!	Students get knowledge of and feeling with concepts on innovation
7. Business Competition	Students compete for the best business plan or business idea
8. Business Game	Via a game, students practice with managing a company
9. Setting up a Company	Students start a real (student) company
10. Business Café	Students build on their network by meeting entrepreneurs and other stake holders
11. Pitch	With strong time constraints, students present their plans in front of a jury
12. Boot Camp	Short and extensive training outside the school walls on different aspects of entrepreneurship
13. Expedition	Students take a distance from their natural habitat to find inspiration and to develop new visions
14. Kitchen Table	Time for reflection by sitting around the kitchen table
15. Business Incubator	Practical and financial support of students and alumni wanting to start a company
16. Digital Platform	Place to network and exchange experiences between student entrepreneurs, alumni entrepreneurs and other entrepreneurs and stakeholders outside the school
17. Student Enterprise Society	Run by and for students. Physical centre for questions, events and activities on entrepreneurship
18. Entrepreneurship Centre	University wide initiative in cooperation with other Universities, research bodies and the business field. Unfolds thematic events and other activities on the theme of entrepreneurship.

The themes can be divided in two sets with a different character. The first set (theme 1 till 14) describes activities which can be applied in curricular courses or programmes. All these activities are described similar with information on content of the activity, roles for teacher and students, practical tips how to start and a list of examples of the separate good practices.

Main characteristics of these activities are:

- all activities are to a certain degree inspired by an authentic situation derived from the profession of the entrepreneur. Thereby different disciplines are integrated instead of providing a set of individual courses on separate disciplines.

- all activities stimulate active learning by the student and provoke a sense of responsibility which enhances students' motivation
- teachers' role is merely coaching and supporting the student in stead of supplying knowledge
- all activities pay attention to developing entrepreneurship competences (following the list of Man et al., 2002)
- Regarding the content of the activities, more attention is paid to developing self-confidence, reflection and self-awareness in stead of solely focusing on technical and theoretical aspects of entrepreneurship.

The second set (theme 15 till 18) describes extracurricular activities which an educational institute can undertake in a broader sense in order to facilitate and support entrepreneurship and entrepreneurial activities within and outside the institute. These activities more or less give an indication of the entrepreneurial mindset of the whole educational institute, in which it was clear that support from the management level was, in a facilitating and motivating sense, very important for teachers and students to be able to experiment with establishing new entrepreneurial activities.

Toolkit for Entrepreneurship Education

The list of 18 activities are in turn translated towards an online interactive toolkit. This toolkit gives further support to teachers and other users in shaping their entrepreneurship education. The Toolkit consist of 2 parts:

1. Part I is a set of 15 questions about the goals, possibilities and preferences of the teacher. The questions guide the teachers towards a picture of the activity he/she is looking for.
2. Based on the answers on these questions, the teacher gets an advise which of the 18 activities match with their preferences. This is part II of the Toolkit. Each activity is then described according specific characteristics and with a list of examples.

7. Discussion and conclusion

The good practices found in this study show that along with the changing working field depicted by agricultural entrepreneurs having to face bigger challenges and taking higher risks, education changes also. This is needed to deliver young entrepreneurs who can keep up with this fast changing economy. The good practices can therefore be used to further improve courses which focus on different aspects of entrepreneurship and serves as support for teachers and developers of these trajectories. It has become clear that entrepreneurship education has many different shapes and is developing continuously. The focus of education moves from providing merely technical and theoretical information towards paying attention to the student as an individual; 'what does entrepreneurship mean and do I want this?', and 'which competencies do I need and how could I develop these?'

But extension consultants can also profit from this information as, more then ever, agriculture needs high quality extension services. Not only to assist farmers in handling the constant flow of complicated government regulations, but also to meet the increasingly specialized demands of clients (Hoffman et al, 2000). Therefore it can be valuable for these consultants to get acquaintance with the thematic activities found in this study. Their youngest clients, agricultural entrepreneurs just entering the market, likely have followed education displaying these activities. The way these entrepreneurs orientate themselves to the market, and the strategy they use is for a great extent inspired by the way they are educated. They have learned how to make decisions independently, to have a wide vision on their possibilities and acting with confidence and self awareness. Agricultural extension work can make use of their knowledge on this situation and adjust their work and advise to their changing customers.

In the end, the activities of entrepreneurship education as displayed in this paper, can also serve to support trajectories of continuing training.

Main aim of this study was to improve Dutch higher agricultural education by finding good practices abroad. Even though none of these good practices were new to the Dutch institutes, the good practices did give handles, tips and practical suggestions as to how to bring these into practice. It is however too soon to draw any conclusions on to which degree these good practices are used in improving the current Dutch programmes on entrepreneurship education.

Furthermore, this study made clear that the competencies important for entrepreneurs at the moment are also reflected in the developments of entrepreneurship education. Nowadays, young entrepreneurs enter the market in a different way with different competencies, views and methods. Less focus is on primary production and the farm is more and more regarded as a business unit which needs strong leadership and entrepreneurial skills and attitude. It is important for extension services to be aware of this development and to adjust their advice onto this.

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IS TECHNICAL CONTENT STILL RELEVANT?

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Keywords: Technical, relevant content, farming systems.

1. Introduction—Production Context

As a system, farming naturally evolves as the larger social, ecological and knowledge system in which it is embedded also evolves. Initially, farming systems relied heavily on technical innovations as the primary means for increasing production and reducing costs. Consequently, the core function of the Extension/advisory service was to provide advice on adopting technical innovations. As the farming system evolved, other facets of the system such as farm management, home economics, youth, marketing, rural development, and the environment became relevant content in Extension/advisory work. Additionally, as it became evident that farming systems were embedded in a social process, extension/advisory services were required to develop processes and the necessary process skills to deal effectively with the social implications of farming. With the emergence of these other knowledge areas and their perceived relevance to the farming system, the question that is now being asked is: “Is technical content still relevant?” This paper attempts to answer this question using a case study of cotton farmers from the Aegean region of Turkey.

Cotton is one of the most important crops of Turkey, with 104, 000 farmers producing nearly 976,000 tons of cotton lint on approximately 591,000 hectares of land (Ministry of Agriculture and Rural Affairs (MARA, 2007).

Cotton production occupies 48% of the land that is cultivated with industrial crops. Turkey produces 4,310kg/ha raw and 1,650 kg/ha lint cotton, which makes it the third largest cotton producer in the world. However, consumption cotton lint is 1,500,000 tons per year. At this rate of consumption, cotton production cannot meet the needs of textile industry. Turkey imports cotton to make up for the deficit in local production, which makes it the second largest importer of cotton in the world.

In Turkey, cotton farmers are supported using three agricultural policy tools. First, a deficiency payment, which has been used since 1998. Farmers who produced certified cotton received 24.2 cent per kilogram while farmers who produce uncertified cotton received 20.2 cent per kilogram in 2006. Second, farmers have received direct income support (DIS) on the basis of land acreage. Farmers have been receiving a fixed amount of payment for up to 50 hectares of cultivated land since 2001. Farmers received \$111.5 per hectare in 2006. Deficiency and DIS payments are elements in the 2006-2010 Agricultural Strategy Paper prepared by Ministry of Agricultural and Rural Affairs (MARA), State Planning Organization (SPO) and the Under Secretary for the Treasury. The third policy tool is the subsidies for fertilizer and fuel that were paid to cotton farmers in 2005. Farmers received \$22.3 per hectare for fertilizer and \$33.5 per hectare for fuel. The share of cotton subsidies in the cotton costs was 41.2 percent in 2005 and 43.3 percent in 2006 (Agricultural Economics Research Institute (AERI, 2006).

Nevertheless, the area sown to cotton declined by 15 percent from 2002 to 2006. The fundamental reasons for this decrease are that the real cotton price has fallen noticeably, and the input-output price parity of cotton has been in favor of input. Many farmers have left cotton production because of increasing costs, while cotton consumption has increased 11 percent in the last five years. Since the Turkish textile industry is a key component of the Turkish economy, a decline in cotton production at a time when cotton consumption is increasing poses a serious problem for the industry and the Turkish economy. Consequently, the purpose of this study is to assess

the operations of cotton farms that provide cotton as the raw material for the textile industry in order to identify the operational needs of farmers.

2. Theoretical Considerations

A farm is a complex system where many subsystems interact to define the state or nature of the whole system.

For example, a typical farm may be thought of as comprising the knowledge, ecological, physical (the land comprising the farm) and social subsystems. These subsystems interact in a dynamic nonlinear fashion to define what is recognized as a farm or farm business. That is to say, what we recognize as a farm is the product of many forces working together over time with varying impacts across time and space. For example, new insights in ecology, biology, chemistry, environmental conservation, and related policies will have, and will continue to have, implications for how production technologies are applied in the future. This is the dynamic feature of the system, which is more accurately defined as dynamic complexity (See Senge, 2006).

Clearly, this dynamism of a farming system implies that both technical content and non-technical content (process techniques) will change continually in response to change in the wider system in which the farming system is embedded. The central idea to recognize is that multiple content areas are relevant to farming as a system. Consequently, multiple perspectives exist on how best to proceed to make farming serve its purpose.

Since at any particular time we cannot always know or gather all the relevant information needed (from all perspectives) to solve a problem, it becomes necessary to delineate a boundary around the problem (Midgley, 2000). Boundaries demarcate what is relevant and what is included or excluded in the analysis of a situation or a problem (Midgley and Richardson, 2007). This necessarily means that value judgments play a critical role in making boundary judgments. Therefore, a key function of Extension advisory/services in a complex post-modern farming environment is to facilitate the development of a process that will bring relevant stakeholders together to make boundary judgments with respect to the multiple content areas involved in driving the farming system to achieve its purpose.

3. Method and Data

A structured questionnaire was used to collect the data from the cotton farmers in seven provinces in the Aegean region. The sample size for estimating population proportions was established using standard protocol following Newbold (1995). The number of interviews by provinces was distributed proportionally taking the number of farms into account. The cross sectional data were collected in 2007 from personal interviews with 81 randomly selected cotton farmers in the study region.

These eight statements, measured on a five-point scale, were used to solicit the opinion of farmers on cotton production problems: finding appropriate type of cotton, finding workers during harvesting time, low cotton price, marketing problems, not aware of developments in world cotton trade and lack of knowledge about irrigation, fertilization and plant protection. Multidimensional scaling was used to reveal farmers' perceptual map of the problems they experienced in cotton production. Multidimensional scaling (MDS) can be described as an alternative to factor analysis. It refers to a set of methods used to obtain spatial representation of the similarities or proximities between observations in a dataset. The goal of MDS is to create a map of appropriate dimensionality such that the distance in the map closely resembles the similarity that was used to create it (Singh, 2007). MDS allows us to detect the underlying dimensions that enable us to explain the observed similarities or differences between the objects of analysis. We then applied cluster analysis to separate farmers into groups based on their response to problem statements. Cluster analysis is used for combining observations into groups or clusters such that observations within each group are similar to each other and the observations or members of a group are different from those observations of other groups (Sharma, 1996). This technique allowed us to

identify farmers' needs, as a group, for specific services. Kruskal Wallis Test was used to compare farmer groups on farmer, farm specific characteristics and farmers response to the problem statements.

4. Results and Discussion

Farmer and farm specific variables are summarized as follows: The Average age of farmer is approximately 45 years. Cotton farmers have 8.96 years of education on average. Family size is approximately 4 persons on average. The average size of farm is 18.6 ha, which consists of 17.3 ha irrigated and 1.3 ha non-irrigated. The average amount of land under cotton cultivation is 4.7 ha. Farmer-owned cotton land is 3.6 ha, rented cotton land is nearly 1.1 ha, cotton's share of the total land sown to crops is 49.5%. The number of fields and cotton fields in the sampled farms is approximately 7 and 4 respectively. Average cotton growing experience in the region is 18.2 years. Average cotton yield is approximately 4,352 kilogram/ha. Nearly 73% of farmers apply soil tests regularly, and soil test frequency is 2.2 years. Total fertilizer usage is 933.6 kilogram/ha in the sampled cotton farms. 92% of farmers use surface irrigation and nearly 18% of farmers do harvesting by machine. 67% of farmers report that they earn less from cotton than from other crops cultivated. Farmers have 435.7 TL in debt and need 3243.7 TL cash per hectare. Nearly 90% of farmers say they will continue to cultivate cotton in the region.

Table 1 summarizes descriptive statistics on farmers' responses to the problem statements. From the data in Table 1, it appears that on average, farmers are most concerned with availability of labor and low cotton prices. Farmers also expressed a relatively high level of concern with problems related to finding appropriate cotton varieties, marketing and lack of information on developments in world cotton trade. However, they seemed only moderately concerned with lack of knowledge about irrigation, plant protection and fertilizer use. Since Table 1 provides data only on average responses, it is possible that differences in response patterns among farmers could be masked by the process of averaging, where high values on certain responses are washed out by low values on other responses. We therefore feel that the data should be subjected to cluster analysis to identify if farmers can be separated into clusters based on their response to the problem statements.

Table 1 - Farmers Response to Problem Statements

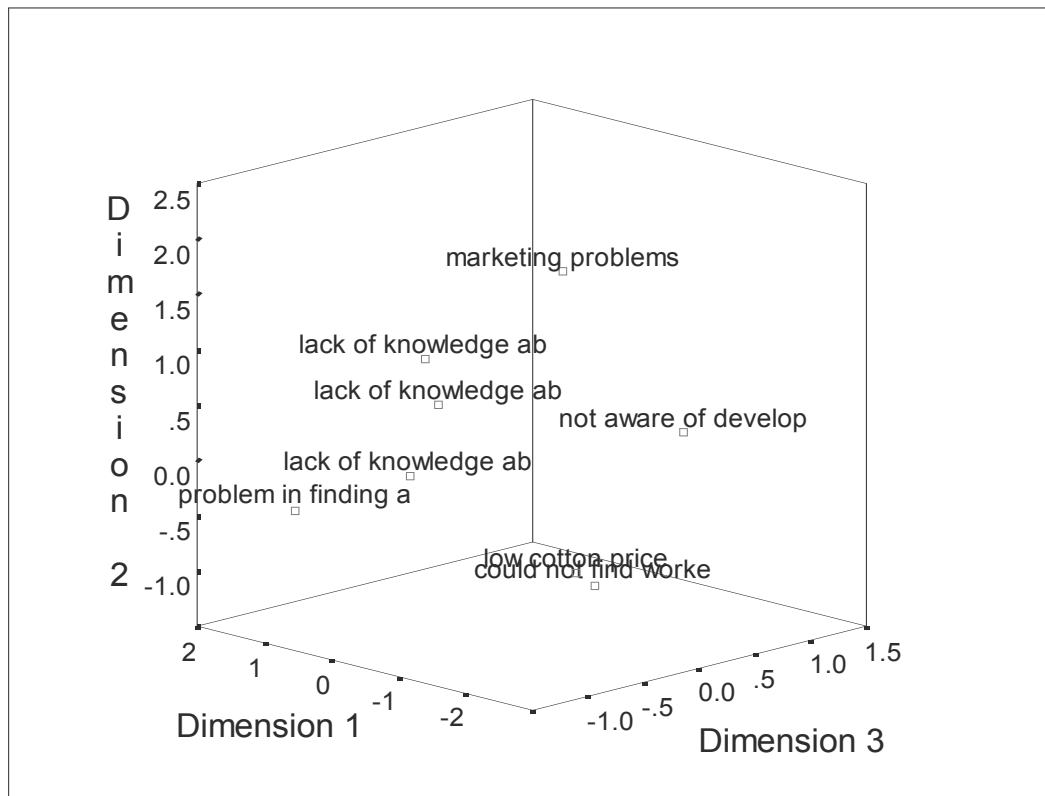
Problem Statements	Mean	Std Deviation	Minimum	Maximum
Problem in finding appropriate type of cotton	3.59	1.70	1	5
Lack of knowledge about irrigation	3.14	1.65	1	5
Lack of knowledge about fertilization	2.88	1.63	1	5
Lack of knowledge about plant protection	3.08	1.56	1	5
Could not find workers during harvesting time	4.06	1.43	1	5
Low cotton price	4.67	1.01	1	5
Marketing problems	3.39	1.70	1	5
Not aware of developments in world cotton trade	3.75	1.60	1	5

1: Less important, 5: Very important; Reliability Alpha: 0.7124

Figure 1 below summarizes the results of multidimensional scaling. Multidimensional scaling separates problem statements into clusters based on how farmers perceive the relationship among problem statements. In practical terms, this means that farmers see similarities among certain statements, which they classify together because they view these statements as relating to the same general function or underlying dimension as illustrated in Figure 1. For example, problem statements clustered along the dimension technical information needs include: finding appropriate type of cotton, lack of knowledge about irrigation, fertilization and plant protection. The

next cluster include: marketing problems and not aware of developments in world cotton trade. The final cluster include: price and inputs information needs. This perceptual map implies that educational programs should be designed to provide information to farmers in clusters similar to the perceptual map of farmers. The results of multidimensional scaling may be usefully interpreted as a process of problem definition—farmers perceive (define) and group individual problem statements into categories that represent a meaningful common underlying problem.

Figure 1 - Problem Definition via Multidimensional Scaling



The next step in our analysis would be to attempt to group or cluster farmers themselves based on their response to problem statements. Table 2 shows that farmers cluster into three groups based on their perceived importance of the problem as expressed in each problem statement. Kruskal Wallis Test was used to compare the three farmer groups on their response to the problem statements. There was a statistically significant difference among groups on all problem statements, except “low cotton prices.” The first group of farmers showed no particular concern with issues described by problem statements on which the other groups differ (average rating of 2.76) and was named “group with marginal concerns.”

The second group of farmers indicated their highest concern with problems related to technical information needs: finding appropriate type of cotton, lack of knowledge about irrigation, fertilization and plant protection (average rating of 4.46). This group was named “farmers expecting technical support.”

The third group of farmers indicated their highest concern with problems related to marketing issues such as marketing problems and information on developments in world cotton trade (average rating 4.5) and was named “farmers expecting marketing support.”

Table 2 - Farmer Groups by Problem Statements via Cluster Analysis

Statements	Farmer Grups						Chi-Square	Asymp. Sig.
	1		2		3			
	Mean	Std Deviation	Mean	Std Deviation	Mean	Std Deviation		
Problem in finding appropriate type of cotton	3.82	1.63	4.64	.73	1.33	.65	27.19	0.000
Lack of knowledge about irrigation	2.35	1.46	4.23	1.15	2.25	1.60	16.74	0.000
Lack of knowledge about fertilization	2.00	1.06	4.23	1.15	1.67	1.23	25.89	0.000
Lack of knowledge about plant protection	2.29	1.10	4.50	.80	1.58	.79	33.51	0.000
Could not find workers during harvesting time	3.35	1.69	4.73	.63	3.83	1.64	8.43	0.015
<i>Low cotton price*</i>	<i>4.59</i>	<i>1.06</i>	<i>4.55</i>	<i>1.22</i>	<i>5.00</i>	<i>.00</i>	2.13	<i>0.344</i>
Marketing problems	3.35	1.77	2.86	1.78	4.42	.90	5.66	0.059
Not aware of developments in world cotton trade	2.18	1.59	4.50	.91	4.58	.79	21.72	0.000

5. Conclusions

Even with this small sample size, we concluded that farmers should be given technical information based on their specific needs. Extension should consider farmers' suggestions and expectations in order to provide the most effective and efficient extension service. We urge Extension to remember that farmers' problems are complex and dynamic—many problems do not remain solved and, at any instant, several content areas and stakeholders will be relevant to the problem situation. Consequently, systemic thinking should be the touchstone principle guiding the definition of farmers' problem domain.

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FACTORS EFFECTING ON ADOPTION OF WHEAT INSURANCE IN TAFRESH COUNTY

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Keywords: Agricultural crops insurance, adoption, income loss, compensation payment.

1. Introduction

Nowadays agriculture, compared to other economic sectors, in terms of assuring required food for the growing population in the world, has an important role. Also agricultural activities, in comparison to other economic activities, faces more risks and uncertainties. Undoubtedly, one of the most important barrier factors of attracting private investment in agriculture is the existence of damaging natural events and incurable hazards that always menace seriously agricultural products in a country. The existence of high natural risks in a country, continuously lead farmers to face many problems. It also will discourage them from investing in this sector in the next years. The decrease in agricultural investment leads to decrease in agricultural output and therefore the society will face food scarcity (Matlabi, 2001).

The most obvious aspect of rural life is uncertainty. Farmers do not have security because from one hand, natural factors mostly threaten to reduce the quantity of harvest and from another hand they are faced with fluctuation of prices in the market (Kerchegali, 2001). Especially in developing countries, because of the low level of farmers' income, these risks are higher. So, insuring the agricultural crops, especially the strategic crops such as wheat, is a supportive policy. Baker (1990) found that crop insurance is a kind of techniques that probably in the beginning of entering rural community meets several problems. According to Krabasi (1999) for attracting agricultural beneficiaries, related to acceptance of crop insurance, efficient factors on demand for this technique or estimating demand should be recognized (Krabasi, 1999).

Efficient factors on demand for crop insurance in Fars province (IRAN), showed that land ownership, wheat production of previous year, age, level of education, farmer's capital, risk taking, previous record for facing risk, have positive correlation in adoption of wheat insurance. But other factors like land value, crop rotation and land diversity have negative correlation with adoption of wheat insurance (Torkamani, 2002).

Agahi et al. (2008) found positive effect of crop insurance in tropical and temperate regions of Kermanshah province of dry wheat farmers' technical efficiencies. However, crop insurance coverage did not affect technical efficiency among farmers in cold regions due to higher rainfall in the cold regions of Kermanshah province.

According to Ridant, high degree of adoption of crop insurance in central Illinois (USA) depends on the existence of probable hazards in agriculture, insurance expenditures which farmers should pay, feeling of satisfaction from getting insurance and other factors like psychological and social impacts (Tirace, 2002).

Ghorbani and Darvish (2001), in their study about factors effecting adoption of agricultural products' insurance found that the increase in insurance level and investigation of factors effecting adoption of insurance are important issues for policy makers in order to be able to recognize the strength and weaknesses of adoption process of insurance.

Ghadirian and Ahmadi (2002) have obtained in their study on efficient factors to tendency for soya's insurance from Golestan province in Iran that factors such as age of beneficiaries, farm size, diversity of products, level of insurance of other crops, and previous records of risk in soya's farms have negative influence on propensity and

elasticity of farmers related to soya insurance. The amount of credits received by farmers had positive effect on the propensity of farmers to purchase insurance (Ghadirian and Ahmadi, 2002).

Agahi and Bahrami (2008) in their study with use of regression analysis found that forecasting the possibility of climate changes such as cold weather, frost, floods and drought display in total 56.7% of the variance for the application of crop insurance.

2. Methodology

Present research in the case of goals is applied; because is looking for development of applied knowledge in a special case (insurance adoption and its development). Also in the case of data collection method, is containing descriptive researches.

Research method applied in this study is the survey. Also, on the base of the research goal, the correlation method has been used, for analyzing relationship between variables and for estimating the variation of dependent variable by using independent variables. Correlation techniques have been applied for analyzing relationship between independent and dependent variables. For estimating and expressing variation of dependent variable with including dependent variables, logistic regression was used. The instrument of data gathering was a questionnaire, and two types were developed. The first one was for adopters of wheat insurance contracts and the second one for non-adopters. The research population was wheat cultivators and using stratified sampling method, two groups of sample population were selected, with $n = 120$ individuals for adopters of wheat insurance contract, and $n = 120$ individuals for non-adopters of the insurance. Cronbach Alpha's coefficient was used to determine reliability of the questionnaires. .84 and .81 were the values of the coefficients which are acceptable. Expert opinions were used to improve the validity of the questionnaires.

3. Conclusion and Discussion

In this research, because of the dependent variable takes on only two values (adoption & non-adoption) so use of logistic regression was suitable.

The following logit model was postulated:

$$Y_i = f(z_i)$$

$$Z_i = \alpha + \sum_{j=1}^n \beta_j \times j_i$$

$$Z = 0.693 + 0.951X17 + 2.606X18 + 0.511X16 + 1.577X2 + 2.273X20 + 0.575X22$$

Z: Adoption of wheat insurance; X17 : farm size; X18 : receive of loan; X16 : compensation payment

X2 : education; X20 : awareness of insurance; X22 : relationship with agents.

The empirical results of the logit analysis indicated that the relationship with agents has positive influence on insurance adoption. Because the more relationship with agricultural formal and non formal Institution, the more awareness of new techniques and opportunities. Also receive of loan and compensation payments have positive influence on insurance adoption. So banks through credit payment and on time compensation payment can play an important role in encouraging farmers to insure their crops.

Findings showed that education, awareness of insurance and farm size have positive influence on insurance adoption. So for increasing adoption of wheat insurance, agents should have more visits to farmers and by using various media such as radio, television, catalog, and newspaper, increase level of farmers' awareness about insurance.

Table 1: Logit model results for wheat insurance adoption in Tafresh County

variables	β	Standard Error	World statistics	Significance level
farm size	0.951	0.464	4.203	0.040
receive of loan	2.606	0.578	20.287	0.000
compensation payment	0.511	0.254	4.042	0.044
education	1.577	0.618	6.504	0.011
awareness of insurance	2.273	0.810	7.872	0.005
relationship with agents	0.575	0.284	4.100	0.043
constant	0.693	3.677	0.036	0.851
Correct prediction (percent)	75			

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ENHANCING AGRICULTURAL ADVISORY SERVICES THROUGH COMMUNICATION FOR DEVELOPMENT. REFLECTIONS IN THE ORGANIC FARMING SECTOR IN COSTA RICA

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Keywords: Communication for development, advisory services, agricultural knowledge systems, organic farming, Costa Rica.

Abstract

Agricultural research and advisory services can greatly benefit by adopting more participatory and client driven methodologies and especially by integrating Communication for Development (ComDev) approaches and services. In recent years it has been increasingly recognized the primary role that communication processes play within extension and advisory services, and in general for the agricultural knowledge systems. Nevertheless, rarely ComDev strategies and services have been systematically considered as part of the national agricultural policies.

The study proves the importance of adequately including communication methods and strategies while planning and implementing advisory services for technology innovation. It showcases the role of local communication processes for the adoption of agricultural techniques in the organic farming sector in Costa Rica. These processes and their impact in the adoption of the farming techniques are analyzed in the context of the Huatar Atlantica in Costa Rica, and compared with key variables such as: the adoption responses; the role of the farmers associations; and the results of conventional extension practices within the framework of the organic farming. Furthermore, success factors and constraints of the communication activities will be analyzed and compared within the context of new information and communication initiatives implemented in the same area.

Research findings will contribute to profile recommendations for a better integration of ComDev services for technology innovation in the organic farming sector.

THE ROLE OF INFORMAL TECHNICAL AND VOCATIONAL EDUCATION COURSES OF JAHAD ON EMPLOYMENT STATUS OF TRAINED VILLAGERS IN WEST AZERBAIJAN, IRAN

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Keywords: Non formal education, technical and vocational, occupational status.

Abstract

The purpose of this study was to assess the role of informal technical and vocational education courses on employment status of these who participated in the courses.

The present research uses descriptive and co relational methods. The total populations were 1334 trained villagers, and 211 of trainees were selected through random sampling method. The results of this study indicated that there were courses with desired job, appropriateness of training contents with employment needs, appropriateness of training title with desired job, appropriateness of curriculum, full uses of teaching methods, location of the training courses.

The results of regression analysis shows that attending in different training courses, appropriateness of training, titles with desired employment, appropriateness of teaching method, location of training had positive effects on employment status.

PROFESSIONAL COMMUNITIES OF EXTENSION AGENTS

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Keywords: E-learning, collaborative learning, network, professional community.

1. Introduction

Agriculture can address the present situations of turbulence appeal to a highly professional and closely networked system of knowledge (advisory service, training, dissemination).

Especially in areas of advanced agriculture, the government intervenes less in the direct management of the advisory service, preferring to support and/or to fund privates (agriculture organizations or free lance independent consultants). Indeed, the public entities prefer to contribute directly to the costs that the farmer has incur to purchase the consulting service, service chosen among those that the same public entities had accredited in accordance on criteria set by law. This is the system chose by EU (CE Reg 1698/2005) and now this FAS (Farm Advisory Service) works in all European Country.

This kind of advisory system highlights strengths and potential negative aspects. Among the first there is more attention to needs of farmers and theirs real will to acquire knowledge; in other words, more power in the hand of the farmers. Among the potential negative aspects there are the risk of dispersion of resources (human and economic), the lacking of coordination of initiatives and the increasing sterile competition among advisory agents, in a system that becomes a market of knowledge.

So, it is important to promote the free circulation of knowledge, the professional development based on processes of collaborative learning, the enhancement of the experience gained at work. Training of technicians through e-learning blended and their informal aggregation into networks of skill (professional communities) are two strategic methodologies.

This approach has been adopted by “Veneto Agricoltura” (www.venetoagricoltura.org), the public Agency of the Veneto Region (Italy) for agricultural, forestry and agro-food sector, which has accrued over the years, an extensive experience in the field of training of professionals in knowledge system in agriculture (technicians, association representatives, trainers, researchers, civil servants, etc.).

2. E-learning blended

The learning methodology adopted by “Veneto Agricoltura” is e-learning blended : e-learning means learning by on-line technology, while blended refers to a mixture of learning methods (classroom and Internet), in which on-line lessons are alternated with a few important classroom sessions or technical tours to allow the analysis of case studies and the reinforcement of the positive moments of knowledge and comparison that personal encounters are able to offer.

This kind of e-learning is very simple and friendly. All that is required to take an e-learning course is a computer with Internet connection and an e-mail address. Students can connect at any time of day from any place, without the need for physical movement or adherence to fixed schedules. However, the course cannot be studied randomly, but according to a calendar and within a well-defined group of course members (about 25-30), led by a tutor. This is very important for the type of students following these courses: in fact, they are all professionals

and they risk to don't pay due attention to the on-line lessons, giving priority to their work engagements. Only in this way they can follow the course with method, consistency and effectiveness.

Students have access to set of texts to study, documents for in-depth reading, self-assessment tests, and so on. Most of these original materials have been specifically designed to be used online, which is different from reading a printed document or listening to a lesson.

However, the most important aspect is the opportunity for active interaction between students, tutors and teachers. Indeed, forums allow students to compare notes with other students and teachers, discuss the subjects of the course in greater detail, request explanations and contribute with their own experience. Documents can be upload by the members and it is possible to share photographs, documents, etc. This process is known as collaborative learning, in which knowledge is not simply transferred from teacher to students, but also among the students themselves, drawing on their own experience and professional skills, which are shared and “networked”. All of these aspects promote the formation of professional communities, which keep alive a network of knowledge and relations that conventional learning processes often promote, but rarely manage to preserve in the long term.

3. Professional communities

A professional community is a web social-network (according to Internet web 2.0) where all professionals, interested in a particular subject, are involved to share and to expand their knowledge, professional skills, experiences and solutions. Consequently, it isn't a traditional educational experience, but “professional”, targeted at job and focused on the experience of the participants and their ability and desire to cooperate.

Although professional communities can be born in several ways, the experience gained from Veneto Agriculture indicates that the more effective communities are those whose members are aggregated through a previous e-learning course. In this way the members can know each other, acquire a equal basic skills, familiar with the network. The community fosters its members, to move from a passive reading of a normal web site, to a membership and active participation. The community generates among its members a process of identification and aggregation among "equals" (peer).

Such as in e-learning courses, also in a community is important to alternate on-line activities (forum, test, wiki, etc.), with in presence activities (seminars, study-tours, etc.). That renews and strengthens the mutual acquaintance and bond among the members of the community.

In same cases the community is an exceptional channel of communication, always available and multi-directional, i.e. capable of connecting local authorities with local players, representatives of different associations or institutions, professionals with researchers, etc.

In the governance of a web community, such as in a e-learning course, are most important some professional positions. Besides the informatics position (system administrator and web content manager) is important the tutor or “community builder”, in charge of develop community, stimulate the activities of members, facilitate the approach to the technologies of the web, etc. This professional, generally, is also an expert in the specific issue of community, but is better that he refers to a work group or an expert.

4. Critical aspects

Besides some critical aspects approached above, many other problems we can highlight in management of a e-learning course or a web community.

The informatics aspects are fundamental, but the development of web solutions and the increase of skills of involved operators are doing these issues less problematic.

The most important problems are behavioural:

- pushing the generational digital device - except the new generations, in the majority of cases the extension agents still haven't a few experience with the informatics tools and especially their language. They are often more accustomed to express themselves verbally rather than in writing. Ask a question or make a comment orally in a classroom is very different than writing the same concept in a web-forum, the sentence will remain there for quite some time, everyone will can read and reread. Moreover, the writing, without being able to use gestures, tone of voice, verbal pauses, it can create misunderstanding.
- breaking attitudes of ill-concealed professional jealousy – in a system of knowledge that becomes a market of knowledge is obvious that each agent wants gain more clients and use his skills, his knowledge as a precious resource. But in a global system, also the competence and knowledge is a resource that can improve thanks to the contribute of all and, in a job situations, thanks the experience of all. Only the ability of tutor and community builder can prevail upon this reluctance.
- winning the hesitation of civil servants to expose themselves - often, in e-learning courses or in communities the civil servants are teachers or experts, and the students refer to them for a question or a clarification, but generally the civil servants are afraid to expose themselves in informal situations such as web forums, in which their answers appear such as an official document.

5. The Veneto experience

Since 2006, Veneto Agricoltura has been offering e-learning courses through Regione Veneto's e-learning web-portal (<http://elearning.regione.veneto.it>), that uses Moodle platform. Courses about different topics (cross-compliance, safety at work, bio-energy, organic farming, business plan) have been involving over 1.000 professional extension agents.

The most interesting experiences are those about cross-compliance, beef traceability assurance and safety at work.

The course on cross-compliance lasts two and a half months, with three lessons in classroom and one trial in farm. After 16 editions of e-learning courses on cross-compliance, all 450 advisory agents, which attended the courses, are now involved in a wide Community. The Community includes several activities in presences such as seminars, and on-line, such as tests, forum, documents. These activities, made by the consultants within the "Cross-compliance Community", were officially recognised by the Veneto Region valid for the purchase of training credits in refresher courses of agents involved in the consultancies financed by the Rural Development Programme 2007-2013.

An other interesting experience is the "Community of agents in beef traceability assurance", a little community (about 50 members), but very determined to find solutions to several and complex situations that each agent tackles in the different steps of its work.

An other large Community is opened in these months. It is the Community of advisory agents in safety at work in agriculture. Such as the cross-compliance community, this admits all persons which have attended the specific training courses about safety at work in agriculture.

It should be stressed that the communities successful, briefly described, have developed in integrated projects, that are projects that use different kinds of tools and methodologies: the printing and dissemination of fact sheets and handbooks, in-depth seminars, etc.. These instruments play a role in enhancing the diffusion of knowledge and support the consultancy activities of the agents. In particular, in the case of the "Cross-compliance Community", an important role was played by the development of a "Dossier of consultancy" comprised of check-lists and flow charts. The Dossier is driving and recording instrument during the counselling. In the Dossier, each aspect of cross-compliance is described in all the phases of analysis and all

possible situations to consider. The agent records all situations, solutions and advices. The Dossier is not, however, an instrument of control, because the consultant is not an inspector of public control Agency. The consultant shall establish with the customer a relationship based on trust, transparency and taking responsibility. A report that is not aimed at the identification of the penalty, but the improvement the situation in the farm. The dossier, therefore, encourages and provides the opportunity to record all those recommendations that have the objective of the advisory action. A similar dossier is under construction about safety on work in agriculture.

The example of Veneto has been taken up by many other Italian regions, which have already adopted these training processes and networking methods (e.g. Lombardy Region and the Autonomous Province of Trento), thus giving scope for a inter-regional network.

GUIDING MULTI-ACTOR INNOVATION AND EDUCATION PROJECTS

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Keywords: Social learning, participatory extension.

1. Introduction

Global change creates a widespread need for innovation, which is also felt in agriculture. While formerly extension workers would distribute new knowledge to farmers in order to foster innovation, nowadays such a linear approach is no longer viable (Kibwika, 2006): existing knowledge is increasingly scarce and uncertain, and the associated issues have strong value-implications and impact wide sets of existing interests (Koutsouris, 2008). To meet these challenges, knowledge, values and interests from multiple actors need to be combined and integrated. As a consequence, complex societal problems are increasingly addressed in multi-actor innovation projects, which can combine knowledge, values and interests (Veldkamp et al., 2009). However, such projects are no guarantee for innovation.

Multi-actor diversity can be a source of innovation, but also a source of conflict, especially when every actor has his/her own interests, perspectives, and goals. In order to collaboratively produce solutions, members of a multi-actor project-team need to overcome their differences, to see the problem at hand from the other's perspective. They need to have a willingness to learn from each other. When such a process of social learning is successful, different actors come to see their problems in new ways, and proceed to collaboratively deal with the challenges they share, while at the same time respecting their mutual differences (Wals, 2007). While it is impossible to guarantee a successful social learning-process, still some methods exist to keep it from stagnation, and to give it a push when needed.

Fostering innovation with multi-actor approaches changes the extension worker from being the "bringer of new knowledge" to being the "guide to multi-actor innovation projects": How can multi-actor innovation processes be guided? In this paper we use an action learning approach to draw upon our own experiences in the Dutch Westerkwartier region to discuss the role of social learning in multi-actor innovation processes, and the ways in which extension workers may guide this process.

2. Multi-actor processes and innovation

A multi-actor innovation project is a carefully arranged group of actors, that share a complex problem which requires new knowledge and new practice for it to be dealt with. Its team members are actors from different societal sectors, such as education, government, research, trade, NGO's and primary production, and generally include researchers, entrepreneurs, educators, government workers, and NGO representatives. Each is involved through their interests and goals, which in turn can lead them to commit further knowledge, creativity, resources and talents to the innovation project.

Besides their personal interests and goals, actors in a multi-actor innovation project also bring their institutional background to the table, often involving a further strategic agenda; organisational goals may not coincide with the participant's personal goals. To what extent is a participation constrained by his/her organisational/institutional background? Which interests are open for discussion? The complexity of multi-actor innovation projects is characterised by differences in goals and interests, and the interplay between the personal and organisational levels. The process of social learning is embedded in a web of power- and trust-relationships.

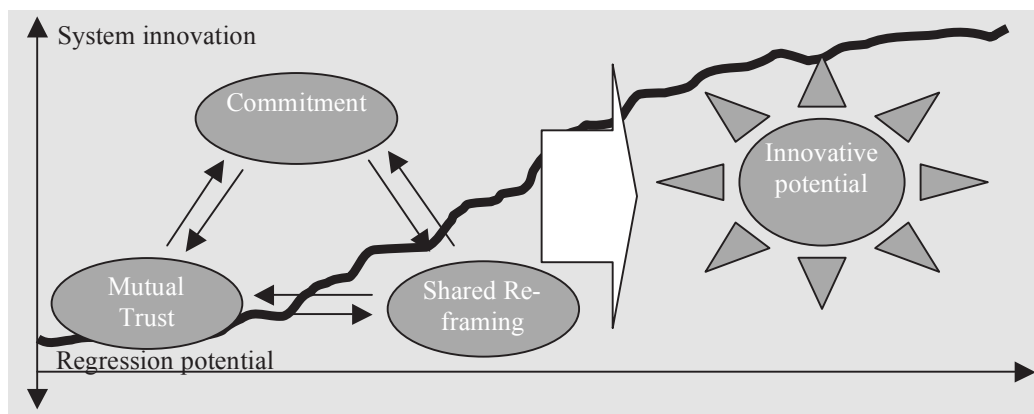
In the optimal case, a multi-actor innovation project becomes a community with a unique problem perspective, creating innovative solutions to shared problems. In the worst case, mutually exclusive perspectives divide the participants, who cease listening to each other (Van Eeten, 1999).

3. Social learning in multi-actor innovation projects

Our theoretical perspective on social learning involves three main aspects: shared frame, mutual trust, and commitment (see Figure 1). Participants in multi-actor innovation processes embark on a process of reflection on their knowledge and values. If this is successful, and original perspectives (frames) shift, or become substituted by new points of view, we call this process reframing (Schön & Rein, 1994). Reframing lies at the heart of social learning. A safe environment (Edmondson, 1999), in which people can trust each other, is an important learning context. Mutual trust develops faster when participants invest in the projects and in each other, when they show their willingness to share knowledge and information, and when they prove to their project partners that they dare to take risks for the project. Trust often is higher in groups which share some history of positive mutual experiences; it gives group dynamics some resistance to problems. Commitment is the third aspect of social learning, and refers to how, and the extent to which participants and their organisational backgrounds are involved in the goals of the project. Commitment can concern passion, motivation, but also resources like time and money. Commitment originates from strong interests and values with regard to the problem at hand and the goals of the innovation project, and results in high willingness to contribute, both in thought and in action.

We see social learning as the dynamic interplay between these factors. An increase in commitment can result in higher mutual trust, which in turn may afford additional reframing. Reframing, commitment and trust can both strengthen and weaken each other mutually.

Figure 1: Social learning is the dynamic interplay of shared frame, mutual trust and commitment.



4. Options for guiding multi-actor innovation projects

Where social learning becomes problematic, the extension worker as a “guide to multi-actor innovation projects” can contribute to innovation. By guiding the social learning process, an extension worker can facilitate the creation of the right boundary conditions for commitment, trust, and reframing. This way, the extension worker acts like an innovation broker (Klerkx & Leeuwis, In Press), involved with the social learning process, but without direct interests in the goals of the innovation project. This contributes to the other participants’ trust in the process. The main research question in this paper is:

How can we guide social learning in multi-actor innovation projects, in order to foster their innovative potential?

Below, we describe the experiences we drew from a Dutch multi-actor innovation process in the region called the Zuidelijk Westerkwartier (the South-West Quarter; SWQ) of the province of Groningen, in which one of the authors acted as a facilitator and action researcher (also see Derkzen, In Press). An action researcher is both part of an innovation process, and by reflecting on it, learns from his/her experiences. The action researcher uses four questions as an analytical focus point for reflection:

- Why did the social learning process stall?
- How did I intervene?
- What did I expected to result from my intervention?
- What actually happened?

These questions were aimed to derive some do's and don'ts for extension workers, and to shed light on the underlying mechanisms. We describe a couple of crucial episodes in the social learning process of the SWQ multi-actor innovation project, in which the facilitator (together with the project team) intervened to prevent or overcome a breakdown in the social learning process. We first introduce the SWQ-case, and then we describe three critical episodes, from which we draw conclusions for guiding multi-actor innovation projects.

5. Case and Short History

In the year 2003, a couple of different people independently conclude that a need exists for integrated development and planning in the SWQ, with synergies between agriculture, nature, and quality of life. The actors involved are some Wageningen University lecturers looking for an area for an education pilot themed “New agriculture”, an agricultural entrepreneur from the organisation “Boer en Natuur” (Farmer and Nature, F&N), a worker at “Staatsbosbeheer” (an NGO managing a large part of Dutch nature reserves), and a government official at the province of Groningen. After they learn that they share the same agenda for the SWQ, they decide to work together towards sustainable regional development, with the inclusion of having students at work in the area. *Here multi-actor collaboration begins to formalise.*

In an official kick-off, the various parties involved commit themselves to sustainable development of the SWQ. Both the organisations that form the institutional background of the core group-members, and new actors are invited. This quickly gives rise to increasing enthusiasm about sustainable development of the SWQ. Students get an important role: throughout spring 2004, they carry out numerous small-scale studies on nature, agriculture and quality of life, and their interrelations. They visit farmers, citizens, and government workers, who in turn spread the buzz of the core group ambitions. In November 2004, a go/no go-meeting is held, at which all actors involved—lecturers, entrepreneurs, government—are present. It becomes clear that all share the same SWQ vision. An official working group “SWQ” is established, for regional effectuate sustainable development.

6. Start of the process

As of December 2003, the core group is “official”: all directly involved people have committed themselves to the SWQ problems, and want to work towards sustainable development. However, the positions of their respective backgrounds and organisations (e.g. employers, farmers’ organisations, electorate) are not known. This first challenge is gaining the commitment of each of the core group members’ background institutions, and the resources they have for action. To that end, the core group organises a kick-off, which results in high enthusiasm and student activity. Especially the students increase the regional social cohesion, because they visit people from all different parts of society. They involve actors in the sustainability issues. It is clear that *reframing* is taking place among the core group members’ institutional backgrounds (Staatsbosbeheer, WUR, F&N). The background organisations come to recognise the region’s potential for innovation. The core group itself can now be seen as

an emerging multi-actor innovation project. However, none of the background come to commit resources to the area. Although the social learning process has yielded a lot of lessons learned, it has not led to a similar yield of organisational *commitment*.

7. First challenges

The first experiences in the area are shared at a seminar in June 2004. Several administrative bodies (the farmers board, the Province, Municipalities) become associated closer with the multi-actor innovation project. From then on, they'll receive the agenda to project meetings, and other relevant documents, but have no obligations to the project. They still have the option to commit themselves in both word and deed. The province and municipalities incidentally join the core group meetings, but are not intrinsically motivated. They'll first await the project yields. Meanwhile, having noticed the increased awareness of sustainable development in the SWQ, the entrepreneur judges the time ripe to proceed with real action. He wants to change his own business processes toward the SWQ aims. However, the project itself is not ready for such commitments. In addition, the role of the administrative partners is still ambivalent. Thus tensions are revealed between the ambitions and goals of the individual members, and the goals and resources of the project as a whole—two months without activity follow.

In November 2004, a go/no go-meeting is held with all involved parties—lecturers, entrepreneurs, administrative organisations.

8. Reframe, (erase and) rewind

The project leader thinks that enough intrinsic motivation should exist to continue with the project, and decides to make this possible. Her intervention is aimed at diagnosing to what extent the future visions for the SWQ are *shared* between the project members, in other words, to what extent the project members have a *shared frame* on the SWQ. She assumes the following: *shared frame* is a condition for the project to continue, and if it is met, then trust and *commitment* are bound to follow. During the go/no go-meeting, it becomes clear that a shared frame for the SWQ indeed exists, despite some frustrations about the results up until then. The first action, to reassert the collectiveness of the project, is to establish the Working Group South-West Quarter, with government approval.

This phase is marked by an on-going process of *reframing*, with collaborative work on a new and common plan. The Working Group essentially becomes the embodiment of the goals of the multi-actor innovation project, and an anchor point for the members to identify with. It becomes more of a community, with its own history and shared experiences. This happens to be sufficient for continuation; members are sufficiently committed, and the explicit government approval indicates an increase in the commitment of the organisational periphery.

Furthermore, mutual trust and *shared frame* have been reasserted. However, the establishment of the Working Group does not yield the expected financial and labour force *commitments*.

9. Patience is a virtue

This is where we leave our multi-actor innovation project for some reflection on the role of guidance. But not before with give the reader a view of what happened after. The Working Group proceeded on its own, without government financial means. With its perseverance and all its contributions to local initiatives in the SWQ, the Working Group effected a number of changes already in the years 2005-2007. In the face of such success, government finally have allotted resources to the project. A long way to go, but successful in the end.

10. Do's and Dont's for Extension in Multi-Actor Innovation Projects

About commitment—Membership of a multi-actor innovation project doesn't entail commitment from one's organisational background. Institutional actors might agree with the goals of the innovation project, but that doesn't mean that they'll participate formally, let alone commit themselves. But commitment can grow over time, especially when the projects achieves concrete results. The multi-actor innovation project itself thus is a dynamic "community-to-be." Participation only becomes sustained on the longer term.

The facilitator must be aware of the goals and wishes of the participants, because they can give some insight in the participants' personal frames. Frame awareness can help shape mutual expectations, prevent future disappointments, and thus foster mutual trust. Beware that social learning can suffer from uncommitted participants, but that their exclusion negates any chance of future commitment. In our experience, patience pays. "Official" events (establishing a working group, kick-off meetings) can explicate actors' goals and values, because they force them to word their *commitment* and their position with regard to the project. Addressing uncertainties can strengthen social learning. About shared frames and trust—Sometimes *trust* needs to increase before *reframing* can occur. An open atmosphere in which people make mistakes and offer "crazy" ideas offers an opportunity for people's perceptions to shift—they *dare* to temporarily put their frames aside and ponder new, shared frames. Group activities, having a good time, and sharing an experience with each other can facilitate mutual trust. Organising them is easy, low-profile, and allows participants to get to know each other. This also helps judging if and to what extent further collaboration is wanted.

About reframing—How and why do actors come change their perspective? The facilitator can make an important contribution by putting the project members at ease. Looking back at past successes together fosters trust and self-efficacy, and the courage to change frames. Another way to contribute to reframing is looking to the future and the changes people want to make together. Do not focus on current mutual differences.

Sometimes it's necessary to make differences explicit, but for the long term, common values, perceptions and experiences offer a more fertile basis for the growth of trust and commitment.

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ITCS AND ADVISING SERVICES ON A LARGE SCALE

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Keywords: Public-private net, cross-compliance, traceability, flexibility of management, simplification.

1. Introduction

Agricoltura è vita (yet CIPAT) is CIA's Department for Training and Advising Services.

CIA with the co-financing of the Agriculture and Technological Innovation Departments, implemented SeTA (Telecommunication Services for Agriculture) a project whose aim is to spread the ICT-use to farmers and advising services.

SeTA is an integrated system which includes a wide range of services and operates through six specific software:

- The SGA, a Management Tool for technical mandatory accomplishments;
- The Integrated Countryside Book;
- The Business Plan;
- The E-commerce and web-promotion;
- The Human Resources Management Tool;
- The Fiscal Accomplishments Management Tool.

Each software provides different services and responds to different needs. On the base of the specific needs, the software can be used by both farmers and technicians autonomously or in net.

This report has the aim:

- To describe the SeTA innovative aspects;
- To deepen the functioning of two specific software used by advising services in the fields of cross-compliance and quality;
- To report a few testing results.

2. SeTA Strengthens

The most important SeTA strengths are: its flexibility, its integration with the public databases, and its capacity to collect information.

SeTA flexibility is due to its particular users profiles' plurality: farmers, local technicians, regional and provincial bodies involved in the adaptation process at territorial level, CIA national body for its general implementation and statistics matters, and some external bodies such as the Public Administration and the Control's Authorities.

The farmers can use the software in three ways:

- Internet-users can check in, receive a password and used them autonomously (provided that they can always rely upon CIA technical advisers for updating and specific needs);

- Farmers which want to receive an external advising service, can dialogue (thanks to their password) via the net with CIA offices and therefore reduce time and transport costs;
- Not internet-users, can refer to all CIA Technical Offices and rely on a qualified support and personalised procedures.

We estimated that, out of 375.000 CIA-associated enterprises (including part-time and collateral enterprises), 80.000 are managed by young professionals: of these, the 50% are internet-users.

On the base of the first data collected, the users prefer the modality where farmers and technicians can dialogue on-line. As concerns the integration with the public databases, SeTA makes use of the web consultation space and in particular:

- The Enterprises Registry Office (AGEA exchange area for the coordination of Italian payers' agencies);
- The Teramo National Database (zoo technical registry offices).

In this way all the data managed interfaces the data validated by the public control's systems.

Whenever there is a discrepancy, a farmer can correct the wrong data. In this way the software improve transparency and facilitate the collection of correct data. Finally the system allows to manage enterprises' information at different levels and provides needs analysis enhancing technical advising service.

3. The Management of mandatory accomplishments' Tool

The SGA is the SeTA's basic and polyfunctional tool. Thanks to its initial screening, the software fits easily different models of enterprises and different technical paths for their adaptation and improvement. On the base of "a questions-tree system", the software permits to underline production features and needs concerning: organic farming, agro tourism, taxation, credit, nursery gardening production, hygienic-safety rules, plants for renewable energies etc.

The system's inputs can be:

- Information provided by database (for example zoo technical registry offices);
- Information obtained through a "*questions-tree system*" (there are almost 700 questions organised in different check lists).

Starting from these specific information, the software assesses farm's technical accomplishments, analyses the enterprise's compliances and defines their adaptation needs. Technicians in cooperation with farmers control and ensure enterprises compliance with the rules of law and at the same time collect data which are useful for enterprise's development and competitiveness.

In particular the system permits to manage:

1. Farms cross-compliance and the need to comply with the rules of law;
2. Hygienic-sanitary safety, providing mandatory documents for each production;
3. Job safety, including training courses for enterprises with ten unities per year, less than ten unities per year and familiar enterprises (also in this case the system provides evaluation and mandatory documents);
4. The (PUA) Plan for the Agricultural Utilization of zoo technical effluents. The software assesses automatically the compliance of the storage structures'. Moreover it evaluates their potential distribution in the land and calculates the quantity of nitrogen in comparison to the agricultural needs and the specific environmental conditions of the annual production plan;

5. Communication concerning effluents' distribution. The software elaborates and prints out the public communication including mandatory information concerning the implementation of Regional Action Plans;
6. The Registry for phyto-sanitarian treatments. The software permits to trace and print out the phyto-sanitarian and fertilization treatments for each lot;
7. The Monitoring of human resources' needs. Thanks to an online specific check, which monitors human resources needs, the software supplies a search-system linked to the labour's demand and offer.

Moreover the system permits to monitor advising services provided by technicians, their specific activities in cooperation with farmers and the assisted enterprises developments.

According to the Regional Measure N.114 of the DRP (Development Rural Plan), the software is suitable for advising activities related to cross-compliance and job safety matters. The Emilia Romagna Region validate the software for the Management of the PUA and for the Communication improvement. The Campania Region claims to all the technicians involved in enterprises advising services to deal with the software.

4. The Integrated Countryside Book

The on-line Integrated Countryside Book permits to manage the farms' production processes, the traceability of interventions and the products flows within the farm. It also permits the documental management of a quality system, the certification of biological products, the PDO and PGI specifications and the quality standards specifications (Globagap).

The acquisition of enterprises areas and the registry office's information is made through the web-link with the AGEA Coordination Department. This linkage with AGEA ensures data security, provided that they are constantly validated by the Public Administration.

In particular, the on-line Integrated Countryside Book manages:

- The lands and rural buildings' catalogue;
- The soil's use and the production plan;
- The zoo technical consistency;
- The agricultural interventions (works, phyto-sanitary treatments, fertilizations, others);
- The zoo-technical interventions (production for grazing, alimentary-ration);
- The hygienic-safety accomplishments;
- The farms' waste management;
- The costumers and suppliers' registry;
- The agricultural risks;
- The storehouse management;
- The lots and products traceability's management.

The software is online and the access depends on the geographical area and on the users profiles; it can be adapted to specific production chains or to different management typologies (organic farming certifications, quality consortium). The software can operate also at graphical level (GIS) and can create, through horto-photos with geo-references provided by AGEA's web-service, homogeneous lands.

5. The applications

The experimentation/testing of the CIA advising system started at the beginning of 2009 (the first tests were done at the end of 2008). Nowadays (June 2009) there are 18.000 enterprises SGA's users and 2000 Integrated Countryside Book's users.

The software are available in all the Italian Regions and for all typologies of enterprises. In several areas we obtained positive feedbacks. This is particularly true in some areas of the Emilia Romagna Region as regards accomplishments for cross-compliance and the Nitrates Directive (in both normal and vulnerable zones).

The software use has been agreed with the Public Administration which has underlined its functionality and its strong capacity to reduce the bureaucracy.

The software gives to the entrepreneurs, backed by technical advisories, the possibility to easily comply in an integrated way with the provisions of the Nitrates Directive, without additional costs and relying upon calculations validated and constantly updated by experts.

Furthermore, the functioning of the software gives to the farmer the opportunity to be aware of agronomical aspects related to the preparation and printing out of communication concerning the starts up of Agronomical Plan for the use of zoo technical effluents. The Software functioning foresees a continuous exchange of information between entrepreneurs and advisors. Farmers are always assisted in data collecting and obtain legislative information, theoretical and agronomical investigations.

At the moment Italian Provincial bodies presented 400 communication and in the Emilia Romagna Region there are almost 200 PUA ongoing. This has been done with the unique purpose to provide a high quality, efficient and faster service to the farms permitting to reduce advising costs. Therefore a future online-dialogue with the Public Administration, will improve automatically the software: SeTA is already prepared for this. It's necessary a stronger commitment by the competent provincial offices.

6. First Evaluations

Although the first official evaluation process will be done at the end of the first implementation year (end of 2009), in these months positive feedbacks shown the efficiency of the tools at different level: enterprise, advising structure and public administration.

As regards enterprises, they are interested in:

- the possibility to create a system of different technical and administrative accomplishments, without documents duplications;
- the possibility to plan administrative aspects within the daily management of technical interventions, reducing time and costs;
- the possibility to be constantly updated on legislative developments and on the verification of structures and production processes' compliance.
- the possibility in case of non-compliance to plan, with the support of a technician (and the Public Administration), an adaptation or improvement path;
- the possibility to unify accomplishments' management tools with those concerning traceability and management of the quality, avoiding duplication of procedures and overcoming the logic of a shift between competitiveness and compliance;
- the possibility to use online procedures autonomously or together with advisors in order to achieve a full self- sufficiency.

As regards advisors, the strengths are:

- an integrated approach of different provisions and technical orientations;
- the enhancement of the security on the base of analytical enterprises' tools constantly updated and validated by experts;
- the reduction of time through online procedures;
- the facilitation of information exchange with other technicians and the individuation, through a single applicative tool and the national advisory net (organised regionally and territorially), of potential supports or specific investigations;
- the accumulation and management of information concerning advising needs for the planning of advising processes.

As regards the Public Administration and the other control's authorities, the strengths are:

- the full documental traceability and the possibility to verify ex-ante the validity of the tools;
- the reduction of time and the possibility to verify online documents and to better verify compliance in the field;
- the full traceability of advising paths and of enterprises adaptation's processes.

During the last weeks we begin to test other SeTA software and in particular the Business Plan, created to request DRP financing or to have access to credit. To sum up the integrated and telecommunication approach showed the growth of an efficiency advising service. To conclude this system permits the improvement of operational standards, the simplification, the transparency, the growth of farmers' position and autonomy.

ANIMAL HOUSING IN LIVESTOCK FARMS: CO-CONSTRUCTION OF ADVISORY METHODS, STEPS AND TOOLS

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Keywords: Animal housing, advise methods.

1. Introduction

In France, the drive to modernise and restructure farms has led to significant demands being made of the construction industry (both for new buildings and the renovation of existing ones). Consequently, the livestock housing market is buoyant with around 15,000 new projects getting under way every year.

For the cattle, sheep and goat sectors, the French government has introduced a Livestock Housing Modernisation Programme (2005-2010). This programme is a means of meeting the renovation requirements of livestock housing and treading a path between modernisation and compliance with environmental norms. Subsidies are available at both national and EU level for encouraging breeders to invest in new housing.

The programme is part of an already existing regulatory framework, and the State submits livestock housing projects for authorisation by an administrative body beforehand in order to ensure that they are within norms. Projects must respect urban development and environmental regulations. Before a project can get underway, it needs to have been granted a building permit, approved by the relevant government departments.

There is also an extensive support scheme available in France for farmers. As part of the scheme, breeders can get support for the planning stages of their building projects and receive guidance in finding the best compromise between complying with the various regulations and satisfying the technical economic requirements of their farms. They can get help with planning their project, secure a building permit or even more detailed advice.

In the first section of this article, we are going to show just how many bodies and organisations are available for dispensing advice to breeders of ruminant animals who want to construct a building. The second section will discuss a project the aim of which was to structure the knowledge of building consultants. The project was run by the Institut de l'Elevage, an organisation which provides management at national level. Lessons learned and avenues for future exploration will be discussed in the conclusion.

2. Livestock building consultancy in France

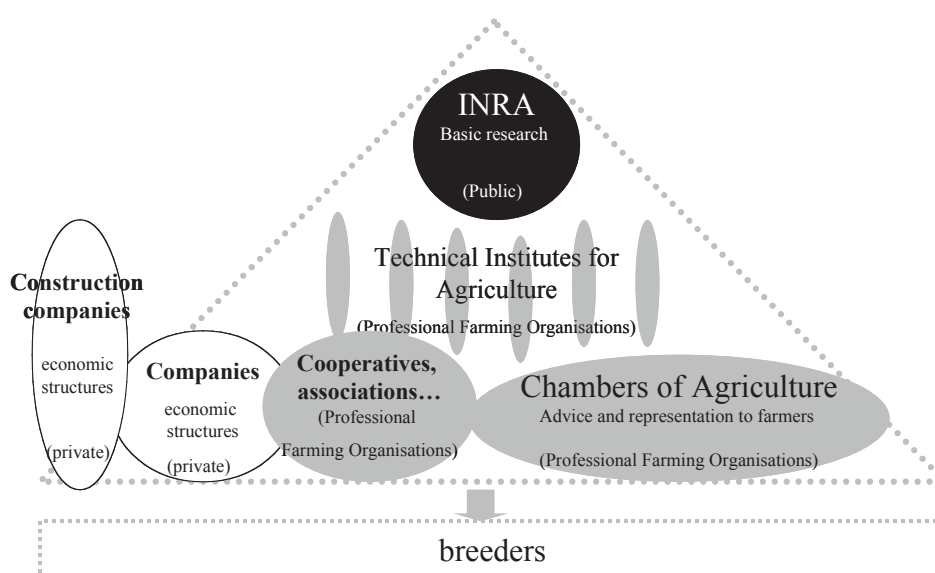
2.1 Farming consultancy in France - a brief overview

France currently boasts numerous farming consultancy structures. They first appeared at the end of the Second World War when France was in the grips of food shortages and needed a means of re-establishing itself as a nation capable of growing its own food. They are the result of initiatives co-run by the State and industry professionals in the farming sector. The 3-stage pyramid was selected as the theoretical organisational model (see diagram 1). Basic research is at the "top" of this pyramid, and is represented by the National Institute of Agricultural Research (INRA). The INRA is a public organisation staffed by approximately 8,000 members. It is involved relatively infrequently in livestock housing projects. Then underneath, there are various Professional Farming Organisations. These are managed by farmers under the supervision of the Ministry of Agriculture, and

are chiefly financed by parafiscal contributions deducted from farming products and farms. There are huge numbers of such organisations. At national level, there are the ICTAs - the Technical Institutes and Centres for Agriculture, which carry out applied research, i.e., they are involved in technical innovation and in providing economic support for farming development and consultancy. They are made up of around 1000 people and work in very close partnership with both research bodies and organisations specialised in providing consultancy.

Each main agricultural sector has its own ICTA. The *Institut de l'Élevage* is the applied research structure which serves the grazing livestock sector. (cattle, sheep, goats and horses). At local level, for putting together references and providing consultancy, the network of Chambers of Agriculture has a key role (with nearly 8000 people spread throughout the country). On the one hand, these organisations are tasked with representing farmers in their dealings with public bodies, and on the other with providing farmers with advice, leadership and training from the time they set up through to when they cease their activity. There are also economic Professional Farming Bodies (cooperatives for supplying, fund-raising, processing, etc.). They are also involved in providing producers with technical support, although in a more limited capacity.

Diagram 1: How research, experimentation and development is organised in France.



In spite of the weighty developmental research support structures in place, a recent report on the previous building programme (2001-2004) shows that nearly 60% of all applications for investment did not receive any technical support. (Capdeville, 2004). Furthermore, in instances when breeders were helped, most of them only received support for putting together the project's finance plan - not actual technical support. For the sake of clarity, the *Institut de l'Élevage* sought to identify support channels available to breeders. There are currently nearly 30,000 people working in agricultural development and research. (Turquin, 2008).

2.2 Building consultancy for breeders: 4 possible scenarios

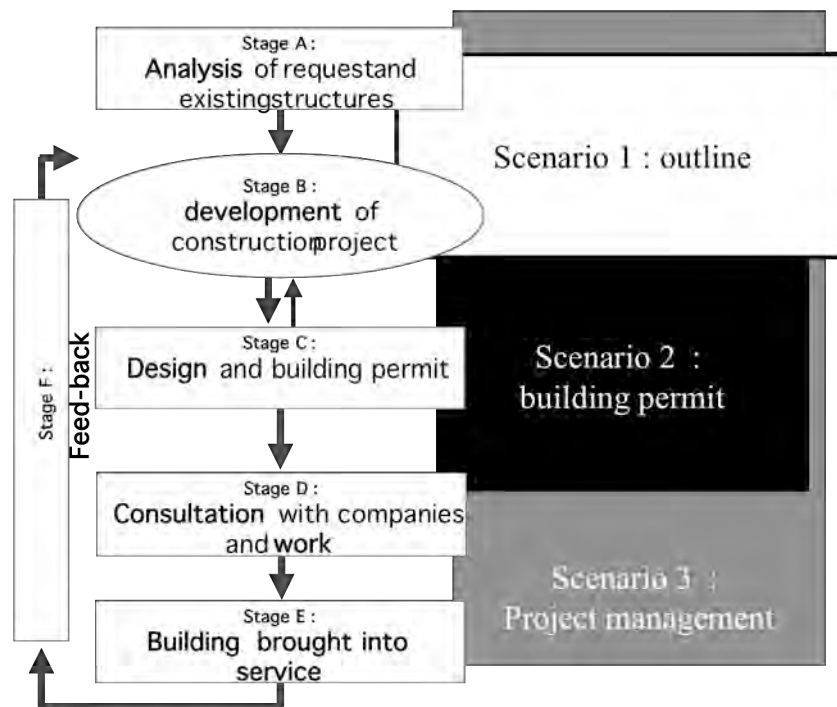
For building consultancy, there are around 300 consultants specialised in livestock housing. 95% of them are affiliated to a Professional Farming Body, and 5% to a company in the private sector. The vast majority of specialist livestock housing consultants are in the Chambers of Agriculture - they account for 60% overall and 35% for the other Professional Farming Bodies (Milk testing, cooperatives, producers associations, etc.). But the livestock housing consultants are not the only specialists involved. At the beginning of a project, they will often work with a non-specialist farming consultant (a breeding, business or management consultant). During the

course of the project, other specialists can sometimes work closely with or in parallel to the livestock housing consultant.

We have found that theoretically there are 5 stages involved in a project and that it is useful to distinguish them from one another. First of all, the request is analysed: the constraints associated with it are looked at and existing buildings on the farm are assessed. Then a series of possible solutions are drawn up and validated through simulation (technical, economic, work, etc.). The next stage involves putting together the plans and assembling the administrative file. Then work begins in consultation with the companies involved and the site is supervised.

The final stage is when the building is brought into service. This sequence of events is not always followed exactly. Indeed, there are a number of different ways of executing a project, but in the face of breeders' requirements for things to get underway quickly and for the solution that they have already selected to be taken into account, the livestock housing consultant sometimes has difficulty in carrying out the first two stages - analysing and then drawing up several possible solutions. These first two stages are sometimes overlooked so that a project can get underway as soon as possible (Villaret, 2001). Also, the support packages available to breeders vary from *département* to *département* in France.

Diagram 2: three scenarios of growing support for breeders initiating construction projects.



scenario 1: advice up to project outline

In this scenario, the livestock housing consultant provides support up to stage B. The breeder ends up with an outline of the project that he wants to implement, but he is on his own when it comes to communicating information about it to the companies or contractors who are to build it. These contractors can then reinterpret it (appropriately or inappropriately), especially if there is no specific framework document. Stage A is often carried out quickly and without any written record. Around half of all livestock housing consultants offer this kind of support.

scenario 2: advice up to the building permit

In this scenario, the breeder receives support from the livestock housing consultant right up to when the building permit application is submitted. At this point the project has been properly formalised and there is no risk of information being lost. But then the breeder is on his own when it comes to making decisions with respect to contractors, asking for estimates and drawing up works contracts - all of which are challenging since these tasks do not fall within his areas of expertise. Around half of all livestock housing consultants offer this kind of support.

scenario 3: project management

In this scenario, the breeder receives support through all stages of the construction project. The livestock housing consultant oversees the transition from stage A to stage B. He guides the breeder, helping him to select an appropriate construction format which is then designed and managed by an architect. This is the scenario with which the breeder is most comfortable. As a service, this is the most expensive, and the least common.

The **fourth** scenario is the one in which the breeder does not request any independent technical support. He does not receive any support in the discussion and design phase, and implements his project in collaboration solely with companies from the construction industry.

3. Formalising consultancy in the construction industry in order to improve support available to breeders

A shortage of training for construction industry consultants

We have found that breeders do not always want support. And when they do, the various services on offer are more or less comprehensive, depending on the *département*. We have also found that the services that livestock housing consultants provide are not standardised. The *Institut de l'Elevage* has suggested a move towards greater standardisation in the support provided by livestock housing consultants, as well as a better quality of service offered to breeders.

Indeed, people beginning jobs as livestock housing consultants have usually been trained in general farming methods, but are very rarely specialised in construction. There are no initial training programmes available. This means that they have picked up their knowledge of the specifics of the construction industry through practical exposure to it, through mentoring programmes that are more or less formalised and then implemented within the context of actual projects. Although in certain *départements* where the construction sector is more developed, mentoring a beginner is not too generous a task, in others, he is on his own.

Structuring knowledge so as to improve the network of construction industry consultants

As part of a drive to provide this structure, between 2005 and 2008, the Institut de l'Elevage set about formalising the consultancy approach to adopt when providing a breeder with support for a construction project.

This formalisation process seeks both to provide a solid basis for training beginner livestock housing consultants, and to enable more seasoned ones to reflect on their practices and the methods and tools that they use. It involves the Institut de l'Elevage, the APCA (a permanent assembly that coordinates chambers of agriculture at national level), and France's network of livestock housing consultants. In practical terms, a working party made up of 13 livestock housing consultants from a range of different backgrounds, locations and businesses met 2 to 3 times per year for day-long sessions, divided into subgroups looking at individual issues. The attendees put forward ideas, listed and discussed the tools they used and helped improve or develop them. They then tested them. So this amounted to the approach being co-developed in conjunction with its users.

The main improvements put forward by the method and tools

The three main improvements that resulted from our sessions were the addition of an information feedback stage, the compulsory formalisation of information at the end of each stage and the creation of a toolbox for all livestock housing consultants. We are also encouraging partnership work.

As far as the method is concerned, we have collectively discussed the inclusion of a sixth stage. The stage in question is very common in all other examples of project management, but has never figured in the working habits of livestock housing consultants. It involves implementation of structures with which to process feedback. In fact, livestock housing consultants only ever receive very little information about how a building that they have designed is operating once it has been built. Through lack of time, they only very rarely return to cattle farms once the building is in operation. Because of time constraints, we have created a simple questionnaire designed to evaluate how the building operates. It can either be filled in individually or collectively by all users of the building: breeders, vets, artificial insemination technicians, milk testers, etc. The livestock housing consultant can contact the breeder's other consultants in order to get their opinions. Then once he is in possession of all this information, he can decide to carry out an investigation in order to better understand where the problems lie. His methods are approved through analysing feedback, thus creating a virtuous circle.

We've also created a summary sheet of the decisions made at each of the first 3 stages. These can be used to accurately formalise details, and to keep a record of them in the event of disputes. But they also serve as a means of allowing the breeder to transfer details of the project over from a technical contact to a professional contact without any information being lost, or to decide - in full knowledge of the facts - to modify or remove a particular aspect of the project. In fact, we have found that some of the advice that is given during either the outline phase or when the building permit is applied for is changed when it comes to actual construction. Sometimes, technical adjustments are necessary, but at other times, these differences can be attributed to mistakes in passing on information.

Lastly, an online toolbox has been created. It includes an overview of the method and a list of all the tools that already existed or have been created for each stage. This toolbox was presented to the livestock housing consultants during their various meetings. The livestock housing consultant network has been run by the *Institut de l'Elevage* and the Chambers of Agriculture for more than 20 years.

4. Discussion

We do not yet have enough hindsight to precisely analyse the consequences of the work that has been carried out. Nevertheless, a number of questions and issues emerge from our findings:

- Livestock housing consultants all have different jobs depending on the contexts in which they work. They are sometimes involved very early on in the project or right in the middle of its definition phase; they either work more or less alone, or more closely with the project manager than with other key figures in the project. Or they work with the many others involved in the project. Are all breeders aware of how diverse the role can be and do they have access to the most suitable organisation for their own requirements?
- Finally, the breeder is often alone in shouldering his responsibilities as works supervisor during the construction phase and when the building is brought into service. Could there be more project management? There are often instances of people on their own or small companies managing building sites, and consulting and selecting contracting companies.

5. Conclusion

The work to formalise (not to standardise) the strategy for supporting construction projects has not only reached its targets... it has exceeded them. The results are exactly those hoped for, i.e., the various stages involved have been identified, an inventory of existing tools has been drawn up and a selection of new tools for the first stages have been created. As a result of the work carried out, new livestock housing consultants can already receive training. The project also set out to enable working livestock housing consultants to discuss their different ways of working and to allow them to take a step back and critically evaluate their own methods. When all is said and done, this happens relatively rarely, and fits in perfectly well with this endeavour of the livestock housing consultant network. It therefore looks as though the project has been useful, but positive feedback from users and the satisfaction of readers will be the true barometers of success.

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TRAINING MODELS FOR RURAL DEVELOPMENT: AN EXPLORATION BASED UPON PORTUGUESE EXPERIENCES

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Keywords: Training, rural development, entrepreneurship, Portugal.

1. Introduction

The paper presents a summary of a study on training in rural areas, developed in 2006/07 by a partnership involving the UTAD Center for Transdisciplinary Development Studies (CETRAD) and *Fundação Solidários*, a NGO working on local development issues, and funded by a government program linked to the fields of employment, training and social development (POEFS) (Baptista et al., 2007). Its major objectives were: (1) to evaluate the impacts of training in job creation; (2) to assess training and post-training support needs; (3) to identify good practices of training and post-training support in other European countries; and (4) to present recommendations concerning the development of more appropriate rural training models and strategies.

The study was conducted in the central region of Portugal, in a small set of rural municipalities characterized by population decline and ageing, as well as relatively low schooling levels. According to the CCDRC (2006), about 7,5 % of the active population works in the primary sector, 53% in the secondary and 39,5% in the tertiary. The economic importance of agriculture has been decreasing. Job opportunities tend to be reduced and the most qualified people migrate to other regions. Access to training and professional qualification is relatively low, as well as the number of those creating their own job.

The research methodology involved a variety of research techniques, including: (1) document analysis; (2) questionnaire interview of former trainees; (3) in depth interviews with a small sample of former trainees; (4) interviews with local government officials, economic agents, and leaders of business and development associations; (5) participatory needs assessment workshops; (6) focus group meetings with institutional actors and representatives of training organizations; and (7) study visits to other rural areas within Europe. A total of 202 individual and collective actors were involved in the study. The following table summarizes the major procedures.

2. Theoretical Background

The study was based on a set of theoretical considerations linked to the concept of lifelong learning and the development of participatory approaches and methods in the fields of adult education and training.

Economies and society are increasingly knowledge-based and a price paid for missing out on learning became a high one (Larsen and Istance, 2001). The European Commission has been stressing the importance of lifelong learning for competitiveness and employability, as well as for social inclusion, active citizenship and personal development. A Communication presented by the Commission in 2006 underlined that adult learning is a vital component of lifelong learning (CEC, 2006). The “Action Plan on Adult Education” specifically mentioned that “The contribution of the adult learning sector to achieving the Lisbon goals and to life-wide and lifelong learning could be improved by the creation of more efficient systems, in which all relevant stakeholders are involved” (CEC, 2007:4).

Table 1. Major Research Techniques and Procedures

Research Techniques	Actors Involved	Objectives
Questionnaire interview	116 participants in 21 selected training courses (about 81% women).	To collect data on individual and family profile, education, economic and professional situation, participation in training activities, professional and economic impacts of training, other impacts, degree of satisfaction with attended training, post-training support, training needs.
In depth interviews	10 interviews to former trainees (of whom 90% women, selected among the 116).	To know and analyze the professional life and verify the relationships between the schooling/training and professional activities: About 50% of the interviewees developed project ideas and applied the competencies acquired in the training course.
Needs assessment workshops	25 former trainees were invited (among the 116), and 17 participated.	To reflect about the impacts of training at the personal and professional levels, to identify other training and post-training needs related to project implementation, and to obtain recommendations concerning the development of more appropriate rural training models and strategies.
Focus group meetings	13 local institutions (local governments, social development associations, agricultural cooperatives) and 5 training organizations	To understand the impacts of training in rural development, to identify the economic activities most likely to create jobs and generate income, to gather ideas on specific training needs in rural areas, and to identify methods to involve the communities in training planning and evaluation.
Interviews	11 local government officials, economic agents and other development actors.	To collect rural development visions and perspectives regarding the activities generating income, needed competencies, and ways of improving social cohesion.
Study visits	2 rural localities and 4 associations in France.	To know innovative training experiences and models of post-training support, as well as approaches to micro-enterprise creation in rural areas; and to develop partnerships for future projects.

A recent study on poverty and social exclusion in rural areas of Europe has identified education and labour markets as one of the main categories of problems. As stressed, the low educational levels of most of the rural population causes a low employment rate and, consequently, may increase the poverty rate, affecting negatively the chance of receiving high quality education (EC, 2008).

In many rural areas of Portugal, particularly the remote ones, the offer of training and adult education courses is generally scarce, and many times does not reflect the real circumstances and needs. Besides, there are few job opportunities, frequently not related to training offers. In such situation it is critical to promote the involvement of different actors in the overall educational process, including the construction of appropriate training models, and the planning, implementation and evaluation of training courses and activities.

The educational approaches stressing active participation have their roots in the progressive, humanistic and radical adult education schools, and a strong influence of learning theories like the constructivist one. The three cited schools, although presenting different ideas, all stress the importance of the learner and the learning

process, and see education as an instrument of individual and social change, and the educators as learning facilitators (Ellias and Merriam, 1980; Freire, 1970, 1977; Knowles, 1970; Rogers, 1969; Smith, 1982).

The constructivist theories focus in the processes through which people build their own mental structures when interacting with an environment (Ison et al., 2000:40), and consider that education is an engine for global development (Cool, 1993: 15). These theories stress the active nature of learning, underlying that it results from a process of social construction in which the learner is not the only one acting, being the other agents instrumental in the global development of the individual (Cool, 1993:15).

The promotion of participatory learning implies the assumption of a set of key principles and the use of appropriate methodologies. Among the principles we can mention the ideas that learners are active, have their own objectives and life projects, have knowledge and experiences to share, different learning needs and styles, and (in the learning process) interact with others and the community (Ferguson, 1980; Pretty et al., 1995; Smith, 1982).

The relevance of participatory methodologies increases when training is part of people and community centered development processes, based upon a democratic view of society, and considering that citizens should have an active role in shaping their own future (Cristóvão et al., 2006; Korten, 1990; Melo, 2003). Melo is very clear in this regards when stressing that local development should adopt a participatory and community education approach with the aim of increasing the qualification, autonomy and empowerment of all.

3. Major Study Results

In the studied rural area the offer of training courses is a responsibility of many organizations, quite spread in the territory, and represents a vast array of topics, including conventional and organic farming, forestry, food processing, agro-tourism, and management of small businesses. Very often a global view is lacking and the articulation between organizations tends to be poor.

Participants in training courses are mainly middle age women, with a low level of schooling, married, with children and/or elderly people to take care, and working in agriculture. Most of them aspire to live in their communities and contribute to its development, as long as a number of conditions are fulfilled, including access to: education and training; income generating opportunities; public transportation; schools and kindergartens; support to the elderly; and other basic services.

The impact of training in job creation or professional change is quite small. However, most people considered that it is quite important in terms of knowledge development and acquisition of new personal and social competencies: Besides, it raises self-esteem and self-confidence. Most trainees continue the activities they already performed, making some changes as a result of the new knowledge and skills acquired. Although, the impacts in terms of family economy are not significant. The small “scholarship” received by the participants of adult education courses is seen a good benefit, and a major motivation to get involved. Longer duration courses tend to have a sharper impact in the trainees’ life.

The study showed that training per se is clearly not sufficient to promote employment, first of all because the number of potential employers of better qualified people is reduced, and secondly because the conditions to favor the creation of self-employment do not exist. In fact, the creation of employment in rural areas, particularly the more remote ones, tends to be a long and difficult process, mainly because the resources are scarce, the labour market is poor, and an entrepreneurial culture is often absent. Besides, there are few structures encouraging and supporting potential project holders, and the very own training model is not adjusted to job creation. Training needs are closely articulated with the major resources of the territory, as well as with some of the perceived development trends, like depopulation and ageing. As such, the major thematic domains mentioned are: (1) agriculture, particularly value-added products and agro-food marketing; (2) industry, metal-

mechanics in particular, seen as a promising cluster; (3) social services related to the elderly; and (4) rural tourism, in close articulation with natural resources, landscape and gastronomy.

4. In the Direction of a New Training Model for Rural Development

As a major conclusion, the study suggests that training in rural areas should consider three major areas of focus: (1) personal and social development, related to self-discovery and the construction of autonomy, assertiveness, self-esteem, and capacity for team working and leadership; (2) basic knowledge and skills, linked to the development of competencies in the areas of literacy, numeracy, and the new information and communication technologies; and (3) professional qualification and project formulation, related to the construction of a professional project direct to a better livelihood. Besides, several levels of training should be given attention: (1) initial, to stimulate the desire for lifelong learning; (2) basic, to develop essential competencies; (3) intermediate, to allow the certification of professional competencies and to facilitate a better professional integration; and (4) advanced, to foster the development of specific types of knowledge and skills, for instance in the areas of management, marketing or languages. Considering the major characteristics of remote rural territories like the one studied other crucial guidelines for the formulation of a new training model for rural development are the following: (1) training should be seen as a instrument of rural development and, as such, imply an articulation between actors, rigorous needs assessment efforts, and full integration in the strategic territorial development vision; (2) training courses should have a core area and at least two articulated fields of specialism, in order to favor pluriactivity and multiple professional options; (3) the objective of creating self-employment should be supported by specific training and post-training approaches, including better linkages with local resources and the consideration of the wider context (threats and opportunities); (4) post-training support should be given by multidisciplinary teams, ready to provide individual counseling to each entrepreneur; (5) post-training support should be facilitated by specific organizational and legal measures, including the creation of such arrangements as the “Contract for Micro-business Development”, with special tax and social security conditions, and the “Cooperatives or Associations of Workers-Entrepreneurs”; and (6) training and adult education courses should not ignore the importance of involving and supporting all those (who tend to be the majority in rural areas) who seek to participate with the objectives of communicating with others and improving personally and socially. It is clear that training and adult education in rural areas is filling important needs and desires of many people, women in particular, in the studied case. As stressed in the already cited EU report on poverty and social exclusion, and confirmed by this study, “The evidence suggests that education and training is likely to prove an important means of increasing the rate of growth in rural and peripheral areas and of helping the poor and socially excluded in those areas” (EC, 2008:6). However, to achieve such goals, better policies and training models are needed.

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INTERACTIVE APPROACH TO MAKE DECISION IN EXTENSION

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Keywords: Extension services, interactive consulting system.

1. Introduction

Agrarian reform in Ukraine moves forward with reformation and changing administration structures. This reform has brought about an increase in the number of private enterprises and it's a new form in agricultural business. All of this has been accompanied by increasing problems and opportunities in the social, ecological, economical, cultural, and educational development at the rural area.

Ukraine's strategy in this environment is to create its own Extension System and to develop Agricultural Extension in its own way. The best model for this Extension System needs to be dynamic and non-formal mixed model designed to function in a market economy, with public, private, and state sources of funding.

The implementation of this Extension model will enable specialists to apply their methods in various ways, such as:

- Developing relevant technology through research;
- Disseminating appropriate technology and managerial improvements through Extension;
- Developing and introducing Extension methods for assessing producers' needs, priorities, opportunities, and constraints;
- Promoting use of marketing in the Extension approach to policy formulation;
- Assessing producer resource use and productivity, economic feasibility of technology adoption, enterprise selection in relation to marketing opportunities, and adjustments in farm size and organization;
- Developing data banks and information systems on enterprises, resource use and productivity;
- Conducting Extension programs in teaching, research, and training;
- Planning credit courses and certificate programs;
- Implementation of an Extension agricultural, social, youth, and community, programs, and study of these through the departments and Extension undergraduate and graduate education; and
- Organizing workshops, meetings, working groups, and training sessions to provide technical backup for field projects in the regions with the objective of contributing to increased agricultural output, farm income and productivity, food security, and employment opportunities [Kalna-Dubinyuk, et al, 2005].

Extension specialists should have competencies in agricultural disciplines, to have communication skill and leadership to design programs. They will work effectively if they have such kind of tools as interactive consulting system.

2. Extension in Ukraine

Ukraine is now an independent country in Eastern Europe and it is one of the largest of the European countries. Total land area - 60, 37 million ha (5,7 % of the territory of Europe) . Agricultural lands - 41.76 million ha (70 % of the territory of Ukraine) . One third of the World's reserves of black soil locates in Ukraine and consists 54% of all Ukrainian lands.

As in many other countries, Ukraine has a rich history of advisory and technical assistance for agriculture and rural community.

Extension roots in Ukraine come down to the 18-th century. At 1788 the first Extension Book – Dictionary by Lenkevych was published at Pochaev Lavra in Ukraine. This dictionary founded a transformation of agricultural information on a professional base. At 1899-1944 in Lviv City worked rayon organization “Rural Ownership”. There were many agricultural extension specialists there. They organized farmers' schools, sections for women, children clubs. All this interesting information Ukrainian emigrants from West part of Ukraine were published at the book “Rayon Ownership Council - Rural Ownership 1899-1944”, New York, 1970 and gifted this book to Colomiya Ethnographic Museum in Ukraine (Kalna-Dubinyuk, 2009). So we can mention that extension Service in Ukraine started to develop on 100 years early then in Europe.

Before Independence in 1991 Extension services in Ukraine was developed on a plan economy system. There were special plan programs to specialists in innovations provided by Knowledge Centers in Ukraine. After the collapse of the USSR, Extension service in Independent Ukraine began to develop on a market economy system more on a regional level. The first support for the development of Extension services came from joint projects with donor agencies and grant founders. Until now there is a difficult settling of the private ownership problem in Ukraine—land still does not move to the productive uses as fast is necessary given the pressures of the global economy.

Extension Services or so called Advisory Service have been created in all regions of Ukraine. There are 29 Advisory Centers, at least one in each oblast of Ukraine. Parliament of Ukraine approved a New Law “*Development of agricultural extension service in Ukraine*” in June 2004 and its budget - 11.5 mln grv. in 2008.

Advisory Service assists farms to increase their profitability and improve life standard of rural population. They are working successfully, helping and to organize of training seminars for Extension specialists, farmers, and for other people which are interesting in new technologies, marketing or management. These seminars are not a part of usual university studies. Their main aim is to help people, to give them information and a new knowledge they need.

National agricultural university of Ukraine (now is National University of Life and Environmental Sciences of Ukraine) was the first that organized Extension Department, extension education, and research program to prepare and to qualify extension specialists in agriculture (advisers in management, agronomy, animal, veterinary medicine, land using, rural development, economic law and etc). As well the Department organizes workshops for teachers of other agricultural higher educational establishments of Ukraine with the aim to introduce the Extension Education into their curriculum.

The Advisory Service has an Extension Coordination Department under Ministry of Agricultural Policy of Ukraine and National Association of Agricultural Advisory Service of Ukraine, and develops its service through Advisory Centers at oblasts, regions, and Universities Extension Centers.

New Extension interactive consulting system CONKA, that we propose for agents and agricultural producers, can help them to make decision in their work [Kalna-Dubinyuk, 2008].

3. Potential of interactive consulting system CONKA

The secret of business success is: "Doing today already that others will think about tomorrow only" by William Churchill. This good expression show us that need to go a head to use advanced technology and communications.

The interactive consulting system CONKA will help to have success in business.

The purpose :

- To provide with knowledge and to help to receive an interactively answer a question of the client.

Users :

- It is intended for the consulting companies and advisers, and also for a wide range of users: from heads of the enterprises and the companies up to the separate businessmen developing the business in conditions of the world standards and certification.

How the system is constructed:

- Technical maintenance: the Modern computer. The Internet. CD disk. Flash memory.
- The software: the Database (DB) and the Knowledge base (KB) on each branches online.
- The world technologies including the requirements on their standardization and certification are incorporated.
- Mathematic : the algorithm for search of the decision is realized by statistical, economic and mathematical optimization methods, expert and other methods.

The description of work:

CONKA works in different modes:

1. In stationary – when the system is at the adviser. The client comes to adviser, and adviser using the system, forms the decision for client.
2. Independently – when the client buys this system on CD disk, adjusted on its business, and to training and to form the decision.
3. Subscriber – when the client subscribes for service by this system on a regular basis through the Internet for an subscriber's payment.
4. Distantly – the client gets access to system, having connected to it through the Internet.

Principle of work:

The system begins work of that is adjusted on the certain client (his branch and a kind of activity) and on his needs (training, consultation or development new (for it) "know-how" under the accepted standards that is very actual).

Then in an interactive mode there is a formation of the decision. On the screen the question and possible variants of answers is asked to the client. The client chooses that answer, which will be good for him. The system passes to a following question and the client again chooses the answer. So proceeds, while the system will not put all necessary questions to form the decision necessary for the client.

Conclusion of the information:

The client receives the answer to his question to the screen of the personal computer, and also on demand as a printing document.

Example:

The client needs to develop technology of cultivation of a beetroot by a new world standards to sell production abroad. Client receives a quickly reply (document) what he should do at his concrete conditions and what benefit he will have (and even it will be possible to tell who his clients – a commodity market).

So it is possible to do and sell on CD disks together with bags of seeds.

For example, the information for people how to grow up (and to look after) in a garden concrete flowers, bushes, berries, trees and all another – pets, birdies etc.

Expenses of time:

The decision is formed in shares of minute or minutes depending on a problem.

This interactivity consulting system CONKA is a good helper for supporting viable rural communities.

4. Conclusions

Extension has and will continue to play an important role in societies.. It needs to use interactively consulting system. A good example of such system is CONKA with its big potential for advisers and clients. Interactively consulting system CONKA is a step a head to extension innovations.

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WEB2.0 IN THE GREEN KNOWLEDGE SYSTEM: OLD COMMUNITY NORMS IN NEW ENVIRONMENTS?

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Keywords: Communication, knowledge generation, The Netherlands.

1. Introduction

- Farmers, traders, experts and citizens in the US discuss agriculture between 8 and 10 pm (east coast time) every Tuesday, text messaging over Twitter. They call it “agchat”, after the tag they use to filter their multi-directional conversation from the millions of other tweets. The debate can be followed by anybody with an internet connection.
- In the Netherlands, a community is forming itself around GUUS, an online tool for aggregating and sharing web links related to rural development.
- Since May 2008, a farmers’ information service in Kenya exchanges information on agriculture and weather through mobile phones using interactive voice response.

The world is changing and new information and communication technologies (ICTs) are powerful contributors to this change. What does it mean for knowledge and information practices around agriculture? In this paper, real life examples from Dutch farmers illustrate what impact the changes taking place have, at both individual and group level.

Society is moving from an industrial model with vertical hierarchical structures towards a networked society with increasingly horizontal organizational structures. The opening up, through ICTs, of information, communication, participation and collaboration lead to changes that are both incremental and entirely novel or transformational. (Smith et.al., 2008)

Implications for agriculture, extension and education are not limited to methods and media alone, but also include institutions and skills.

2. New technologies, new possibilities

A new generation of information and communication technologies is emerging. “Web2.0” is a set of Web-based tools that allow for more interactive and collaborative social activities. Mobile phones with text messaging (SMS) are widely used, also in the developing world context. Increasingly, mobile phones and Internet are merging to become one interconnected system.

Related to this is the consistent reduction in cost of digital content, which arguably has collapsed to almost zero. Publishing content has become very easy and cheap, copying and disseminating of electronic content is very efficient, in part enabled by new technologies such as peer-to-peer (P2P) sharing. These trends allow for a new range of potential social and creative activities, above and beyond what Web1.0 technologies provide.

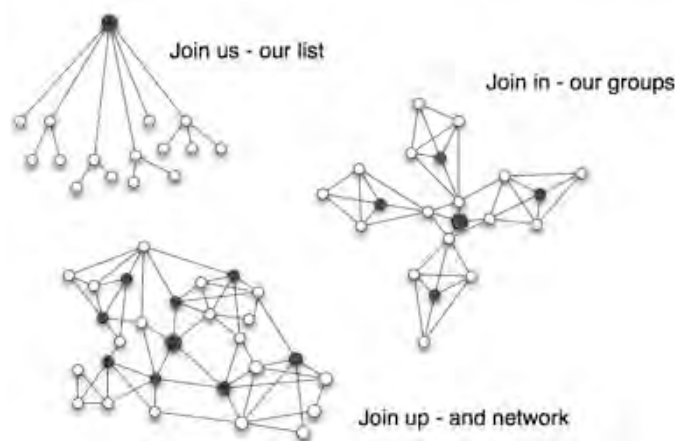
User-generated content

One of the most wide-spread aspects of new Web2.0 applications currently on the Internet, besides the social networking software, are the sites that provide a space to place user-created content. Web logs (blogs) and

YouTube are possibly the most well known, but the field of user-generated content extends into almost any domain of social life that can be imagined. The intensely lowered costs of production and dissemination through ICTs has enabled individuals to share their own creative work with the world.

Increased coordination, organization, and mobilization of people

Individuals, groups and organizations have an unprecedented opportunity to take advantage of the highly networked world to coordinate, organize and mobilize in ways that were heretofore impossible (Rheingold, 2002; Shirky, 2008). The technology has changed the rules by lowering the costs of coordinating group action: “most barriers to group action have collapsed, and without those barriers, we are free to explore new ways of gathering together and getting things done” (Shirky, 2008). (Smith et.al., 2008).



3. Implications for communication and learning

Communication

The traditional model for ‘communication’, depicting a sender, a message through a medium and a (group of) receiver(s), has drastically changed. Control over sources of information or channels of communication is no longer the privilege of few. Today communication is a mishmash: receivers have themselves become senders, and all kinds of messages are sent out multi-directional, and over a multitude of different channels and media. Information scarcity has turned into information overload.

The incredible abundance of information and communication has two effects. First, it creates an attention scarcity and media fragmentation. Compared to before, our messages need to be very relevant or audiences filter them out. So, instead of talking louder to unfocused audiences, now ‘senders’, whether organizations or individuals, need to engage in meaningful dialogue with relevant partners. Second, it creates an immense pool of searchable communications among others. This buzzing universe of linked sites and blogs is an incredibly rich source of information and learning... if we know how to filter and how to listen. Organizations need to listen to conversations about their fields, niches or needs they can fill, feedback and suggestions for improving what they do. It is about tagging and remixing and mapping the network of relationships, looking for where to respond, and where to catalyze action. It is a little bit like listening to the universe.

These tasks can't be done by an individual. They require the diverse "ears" of communities, the wider net of networks, seeking to make connections between people that advance our organization's learning and goals.

Learning

Several forces are driving the trend towards peer learning. One is technology. The new Internet based tools allow individuals to build a unique online presence and profile including what they know; and, they facilitate connections between individual users, allowing each user to build a personal network around a knowledge area. Second, farmers have less interest in authority or being "taught." They learn with and from each other. Instead of connecting farmers with a small defined set of experts, you help them tap into networks of expertise. Informal and voluntary learning becomes a key strategy to move faster than we can accommodate with formally constructed training initiatives.

People flock together without the need for a mediating organisation. Instead of formal expert associations, loose peer networks or communities of practice are emerging. The resulting groups can be highly effective learning opportunities. (White and Kapma, 2008)

4. Examples from agricultural practice

Web2.0 has proven its worth in writing a Wikipedia and developing Open Source software. But how does it relate to agriculture and rural areas? How far have these web2.0 tools been adopted by farmers and others in rural areas, and do they work? While several experiences from Africa have been described (Gakuru, et al. 2009), little is documented about Europe. The following are our own experiences, mostly from the Netherlands.

Dutch communities

In the Netherlands several experiments exist to make use of online interaction related to farming or rural areas.

The groups around their 'online homes' (websites) are all very different, in type of participants, size, liveliness, online or offline focus, activities, tools used. They come from backgrounds as diverse as: media (the farmers' weekly), extension, markets or auctions, associations and companies. It is remarkable to see that the most thriving ones, those that really are actual self-organised communities, came about from 'nothing'. They started off around the content of one or a few individuals and started to grow, seemingly without a preset objective, and often without significant funds.

Does web2.0 change farmers' way of working?

To discuss the statement "The Internet (Web2.0) changes farmers' way of working" I could simply ask users of the interactive possibilities of Internet on their forum. I posed the statement on a dairy farmers forum and on a rural youngsters forum. I received the first reaction 4 minutes after posting the question. On both forums I received about 12 reactions within 24 hours, then a few more reactions to the earlier reactions, and within a day the attention had shifted again to other discussions. On the dairying forum farmers testified that their personal way of working and dealing with information is influenced very much by the contact with peers over the web.

- "A lot changed for me. I read for less of the conventional papers and journals now."
- "I still go to meetings but often I've heard it all before. Here on the forum."
- "Other information sources have clearly moved to second place. I have cancelled some subscriptions."
- "Before I buy anything I look at market sites and at the opinions of colleagues who reacted. It makes it much easier to decide."

The youngsters at the other forum, on the contrary, said that "it's not about information exchange here, we just hang out together for fun". Later on from other reactions, and especially from other discussions on the forum, it became clear that although it may not have changed for them, information strategies of these young people are very different from those of young people before -even as little as a few years ago.

GUUS

The Ministry of LNV became aware of the potential of web2.0, but also recognized the organic nature of online knowledge sharing. With investing in the development of www.GUUS.net, the Ministry initiated a community tool which potentially can:

- 1) keep track of and support all types of online activities in the sector;
- 2) help users get to know and network with other users who follow and track this.

GUUS is an aggregator for bookmarks. Users mark and annotate webpages they like and send this to GUUS. The resulting continuous stream of bookmarks, with personal notes and recommendations of peers, can be checked daily by users to see if there is something of their interest, and can also be sorted out, filtered and searched. Users can subscribe to partial streams or to certain peoples' streams. Several hundreds of users are now gaining experience with GUUS.

Farmers organizations 2.0?

Since the summer of 2005, web 2.0 tools have been taken up by community of dairy farmers (Dutch immigrants) in Portugal, resulting in a Rural Women's group and a Milk Network. Both groups are autonomous, self-organized by people living and working in rural areas; both use e-mail groups and meet face to face to share knowledge and interact. 'It can work!' is probably the most important lesson learned so far from the Portuguese experience. The web 2.0 tools incorporated by the networks helped to enliven communication in a pre-existing, small farming community, contributed to the formation of new internal and external links, provided an opportunity for social interaction for and learning, and helped develop shared new practices. The fact that computer use and literacy among members is limited proved to be of relatively minor importance. Overall, faith in the promise that web 2.0 holds for rural development is sustained and strengthened.

5. Opportunities for the 'Green Knowledge System'

The paradigm shift towards the network society (Wielinga, 2001) has been given a new impetus by the advent of the new Internet tools. Knowledge systems and their stakeholders finally have the possibilities they always wanted. Web 2.0 for the first time in history brings methods for knowledge sharing within the reach of those stakeholders themselves, for interaction with diverse and if needed numerous others.

There is a general potential for development: if society as a whole is more open it means knowledge is more universally accessible, it means larger freedom for more people. The new interactive ways give farmers, who are often bound to their farms, options to connect to other farmers.

Agriculture, and many of today's issues have become so complex that diverse stakeholders and sometimes competing claims are at stake. The interactive Internet might be the ultimate Multi-Stakeholder Platform (Röling, 1998). Interaction through Internet might help to listen and connect, to expose stakeholders to others, and thus to support multi-stakeholder issues.

After a period in which we mainly celebrated the fact that Internet enables us to work separated of location and distance, now a period has started in which content is geotagged to a location. In Google Maps, we can already do Google searches on the basis of location. Shortly, unprecedented amounts of data will become available linked to GIS, Geographical Information Systems, and presented on maps in ways meaningful to us. While devices for Internet become more mobile, the content itself is increasingly tied to the land around us, to the extent that it will be significant for the area, the landscape, the people who live there. The new tools for easier collaboration bring fine-tuning business-to-business between successors in the production chain -before mainly the privilege of large companies who could invest in it- more within the reach of SME's. Finding and collaborating with neighbors and regional partners was never so easy. Niche products could be marketed to a

larger public with web 1.0 already, with web 2.0 they can be pooled and grouped a lot easier as well. Selling less of more, region bound web malls also for food, subscription agriculture, regional branding and regional sourcing might emerge. For research and policy making, the possibilities are huge but still difficult to comprehend. Automated searches, filters and subscriptions by make it easy to 'listen in' and track exactly those conversations you need to know about. The way data becomes available and can be combined makes it possible to see patterns that could not be seen before. An example is how Google predicted flu better than hospitals could (Ginsberg, 2009). An important consideration is that, in both urban and rural, developing and developed settings, web 2.0 is not merely the next step in technology, but has the potential to completely transform the interaction and organization of professional practice. (Kapma, 2007)

6. Questions and threats

The questions and threats are equally large. The overview article by IDRC, 'Open ICT' (Smith et.al., 2008) sums up:

- Education -What type of education is best and how should we deliver that education
- Socio-economic divide -How to generate the maximum social benefit to lessen the digital divide
- Institutional change -What form will the new institutional structures take?
- Sustainability/new business models: (..) What are the sustainable business models for content production and provision? (..)
- Intellectual property rights
- Filtering and accreditation: how and who will validate, filter and organize data? (...)..for what technologies and in what circumstances do different approaches to peer-based validation of content work (or not) and how do we avoid the downsides (such as the spread of mis- or dis-information)? (Smith et.al., 2008)

7. Implications for agricultural extension

Media

Not only have new media been added to the options, such as online video, blogging, skype; but these media can be used in entirely different ways. Cross-media, meaning many media and platforms are used simultaneously and social, meaning content comes from multiple sources and in rather unorganized ways. GUUS alone uses an aggregation tool, a blog with text, photo and video, a linked in group, a Hyves group, a Ning platform, a wiki, and Twitter. A trainer / facilitator is no longer all-round if s/he can only manage real life facilitation.

Contact methods will change to include ICT mediated contact, but real life contact will not necessarily become less. Offline (real life) and online methods will complement and support each other, like the use of telephone supports a relation. Real life and online work each have their own dynamic and each provides a different milieu for participants to manifest themselves. People known to be shy in real life, may flourish online, and those who talk a lot may wither. Equally, the ICT mediated interaction provides an important opportunity for orally and visually oriented people. Reading and writing suddenly seems overrated now we have found easy ways to document and replicate those older and richer ways of passing a message. Multi-literacy, the capability not only to read and write but also to shift gears between oral, visual, text, real and virtual, is both an opportunity for less-schooled and an important challenge to us all.

Institutions

The organizational models that we avail of at present do not match the new dispersed form of organization which these technologies herald, nor are they particularly conducive to this change. Web 2.0 supported communities have the potential to support social organization for development, linking different actors to local development, but to promote autonomy, sustainability and replicability of communities, further thinking is required.

Content

As personal learning and information strategies change; so do training needs. Knowledge sharing and sensemaking become more and more important, as well as networking among colleagues and likeminded people.

Even more than before, knowledge workers will participate as peers and facilitators. They will be asked to help shape working ways, to design events and online surroundings, to help create and enabling learning environment.

New roles are being recognized, like community manager, for stewarding technology to foster knowledge sharing and participatory approaches among the community members. Instead of providing answers, the ability to ask or help surface the right questions is more important.

Implications

For agricultural extension and education the changes are not only incremental as was the case in the progress from print to photocopies or from radio to TV. The new technological options are in many ways transformational, marking the transition from the industrial age to the networking age. Still, for rural populations there is a lot of common ground, as social norms among successful networkers are remarkably similar to those of the 'old-fashioned' communities. As yet, none of the mentioned questions and threats have been studied for agricultural extension. We need to learn the ropes (technology) while community norms are still familiar.

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BUILDING BRIDGES: ADOPTION AND DIFFUSION OF ICTs AMONG FARMERS IN NORTH GREECE

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Keywords: Adoption, agricultural extension, communication, education, information.

1. Introduction

Over the last decades, the content of agricultural extension is starkly concerned with the diffusion of information and communication technologies (ICTs) among farms. Apart from that, Ramkumar et al. (2007) indicate that ICTs work as the tools which provide powerful “force multipliers” to conventional extension. Moreover, Akpabio et al. (2007) maintain that ICTs will increase the outcome of extension work and step-by-step will transform extension officers into catalysts who will access and transfer relevant information and assist farmers to utilize such information to solve pressing problems.

On the other hand, the potential impact of ICTs on development (Castells, 2001; Walsham, 2001), has become a much contested issue. In the framework of rural development and poverty alleviation, ICTs’ potential impact on the innovation-diffusion process has drawn the attention of both scholars and practitioners and has resulted in lively debates as well (FAO, 2003; Dean, 2007).

From a theoretical point of view, the basic notion which underlines the adoption theory is that potential adopters do not adopt any innovation independently, but instead influence each others’ adoption decisions. The influence of early adopters (innovators) on later adopters (laggards) is often called “word of mouth communication” (Rogers, 1995). This term refers to a much broader set of phenomena than farmers simply talking to each other. For instance, a farmer might be influenced by another farmer simply by observing his/her behaviour (Kibwana et al., 2001).

The main aim of this article is twofold: (a) to estimate the extent to which farmers have been adopting ICTs and (b) to figure out the importance of agricultural extension as educational delivery tool in the study area. In addition, ICTs that farmers have already adopted in their farming practices are explored as well as particular attention is given on farmers’ interest in precision agricultural methods.

2. Material and methods

The collected data relate to the farmers use of ICTs and the nature of their enterprise. Demographic and attitudinal information was also collected. The key questions concern the value of ICTs use in their business according to a number of factors including the use of accountancy records as well as the use of online banking. To encourage participation and minimise the cognitive burden on respondents, most questions were framed with *Likert* scale intervals.

The list of potential respondents was compiled from several sources. These comprised lists of members of cooperatives and lists of farmers obtained by the regional authorities. Participants were selected at random from the compiled lists. Data were collected through a mail-out/telephone response format. All surveys were mailed out in batches of 30 per week from January to July 2007. Respondents were contacted by telephone in the following week and asked if they would like to participate. Respondents could either complete the forms in their own time and return them by post, or respond over the telephone. By July 2007, 920 responses had been

received from 2,500 questionnaires issued. There were another 13.4% of respondents who indicated that they did not use ICTs and that the survey was not relevant to them, giving an overall response rate of 50.2%.

3. Results

The main research findings are presented in the five following sections: (a) presence of available ICTs in farms (Table 1), (b) different categories of ICTs use (Table 2), (c) perceived advantage in ICTs use (Table 3), (d) farmer's familiarity with precision farming (Table 4) and (e) preferred educational delivery methods for farmers (Table 5).

From the data of Table 1 it is obvious that farmers in the Region of Central Macedonia (RCM) use ICTs in their farms more often than in the other regions. In particular, the presence of cellular telephone, personal computer, printer, answering machine, PSDN-DSL internet, e-mail, fax, cable television and GPS, in the farms of RCM, is rather satisfactory and exceed the average level. On the other hand, the farmers of the Region of East Macedonia-Thrace (REMT) use more often television, tone telephone or satellite TV dish for information and communication purposes. Finally, the use of ICTs in the third region (RWM) is sensibly fallen short the other ones.

Table 1. ICTs on farms

Responding "Yes"	RWM (160)	RCM (400)	REMT (360)	Total (920)
Television	96.87% (155)	96.50% (386)	98.33% (354)	97.28%
Tone telephone	88.75% (142)	94.50% (378)	97.78% (352)	94.78%
Cellular telephone	82.50% (132)	92.75% (371)	82.78% (298)	87.07%
Personal Computer	45.62% (73)	53.00% (212)	48.33% (174)	49.89%
Printer	30.62% (49)	44.50% (178)	39.72% (143)	40.22%
Answering machine	22.50% (36)	42.25% (169)	26.39% (95)	32.61%
Internet or e-mail capacity	13.75% (22)	25.75% (103)	22.78% (82)	22.50%
FAX machine	10.00% (16)	18.25% (73)	13.61% (49)	15.00%
Cable television	7.50% (12)	11.25% (45)	3.89% (14)	7.71% (71)
DSL Internet	5.00% (8)	14.75% (59)	2.78% (10)	8.37% (77)
Satellite TV dish	2.50% (4)	3.50% (14)	7.78% (28)	5.00% (46)
Global positioning system	1.25% (2)	3.00% (12)	1.67% (6)	2.17% (20)

According to the descriptive statistics analysis, presented in Table 2, the ranking of the average mean scores for the farmers of all the regions sets up the social and recreational uses in the first position (4.19) followed by e-mail use (3.99), market information (2.83), whether information (2.73) and education use (2.40). More specifically, the use of e-mail and the use of ICTs for social and recreational purposes are rated highly (over 2.3) by the farmers of all the regions, followed by use for weather information, educational use, online banking (REMT and RWM), market information (REMT) and technical use (RCM).

Respondents were also asked to rate the advantages of ICTs use. The results (Table 3) show that the majority of respondents viewed the ICTs as being of low value to them. Among the reasons that ranked higher (over 2.30) in the perceived advantage in ICTs use were "better information decision-making" and "greater clerical efficiency" (less paperwork).

The survey also included the following description of precision farming. *"Precision farming, or site-specific farming, is a way of looking at farms, fields, or specific areas within fields through use of information management systems."* Farmers were asked about their familiarity with precision farming, their level of interest in it, their intention to adopt it within the next years and potential benefits of precision farming.

Table 2. Different categories of ICTs use (mean scores)

Different categories of ICTs use	RWM	RCM	REMT	Total
E-mail	3.95	4.11	3.88	3.99
Weather	2.91	3.29	2.02	2.73
Technical	2.00	2.34	2.07	2.18
Market info	2.27	2.97	2.93	2.83
Education	2.68	2.45	2.21	2.40
Online banking	2.32	2.67	1.72	2.24
Social and recreation	3.73	4.22	4.36	4.19
Buying	1.95	2.29	2.05	2.14
Selling	1.64	1.06	0.56	0.97
Own web site	1.32	0.96	0.68	0.91

1=non, 2=low, 3=medium, 4=high and 5=very high

Table 3. Perceived advantage in ICTs use (mean scores)

Reasons	RWM	RCM	REMT	Total
Better information	3.06	3.76	3.28	3.45
Less paperwork	2.29	2.38	2.31	2.33
Improved customer service	1.81	1.94	1.78	1.85
Faster supply of goods in	1.54	1.63	1.7	1.64
Better inventory control	1.31	1.12	1.18	1.18
Reduced costs	1.63	1.98	1.93	1.90
Service differentiation	2.00	2.27	2.11	2.16
Competitive advantage	1.55	1.68	1.72	1.67

1=non, 2=low, 3=medium, 4=high and 5=very high

It was thus found (Table 4) that 22.72% of the farmers are very familiar and 52.07% of them are somewhat familiar with precision farming. Likewise, their level of interest in precision farming is reflected in their level of familiarity with technology. More than three-fourth (78.27%) of the farmers indicated an interest in the technology (somewhat or very interested) and about one-fourth of them (24.46%) have already adopted precision farming. In particular, farmers of the RWM seem to be more familiar with precision farming and farmers of the RCM present greater levels of interest and use.

Table 4. Farmer's familiarity with precision farming

Responding "Yes"	RWM	RCM	REMT	Total
Level of familiarity				
Not familiar	13.75% (22)	25.50% (102)	27.00% (108)	25.22%
Somewhat familiar	56.25% (90)	51.00% (204)	46.25% (185)	52.07%
Very familiar	30.00% (48)	23.50% (94)	16.75% (67)	22.72%
Level of interest				
Not interested	22.50% (36)	13.50% (54)	27.25% (109)	21.63%
Somewhat interested	43.75% (70)	44.50% (178)	38.00% (152)	43.48%
Very interested	33.75% (54)	42.00% (168)	24.75% (99)	34.89%
Level of use				
No plans to adopt	54.37% (87)	47.25% (189)	51.50% (206)	52.39%
Plan to adopt within next	20.00% (31)	25.75% (103)	19.50% (78)	23.04%
Have already adopted	25.62% (41)	27.00% (108)	19.00% (76)	24.46%

Furthermore, farmers were asked to indicate whether agricultural extension services should place “less emphasis”, “the same amount of emphasis” or “more emphasis” on thirteen ICTs delivery approaches (Table 5). Farmers are slightly more likely to prefer local educational meetings or seminars (51.74%). In addition, farmers are also likely to place emphasis on: printed bulletins (42.50%), involvement on applied research (41.85%) and phone help lines (41.85%).

Table 5. Preferred educational delivery methods

Indicating “more ”	RWM	RCM	REMT	Total
One-to-one consultations	30.00% (48)	24.00% (96)	18.89% (68)	23.04%
On farms demonstrations	38.75% (62)	24.75% (99)	20.83% (75)	25.65%
Local educational meetings or	56.88%	53.00% (212)	48.06% (173)	51.74%
Prefectural educational meetings or	17.50% (28)	13.25% (53)	8.06% (29)	11.96%
Regional educational meetings or	27.50% (44)	10.50% (42)	7.22% (26)	12.17%
Farmer involvement on applied	55.63%	42.00% (168)	35.56% (128)	41.85%
News and reports via the farm media	26.88% (43)	16.50% (66)	8.61% (31)	15.22%
Phone help lines	41.88%	43.25% (173)	40.28% (145)	41.85%
Printed bulletins	44.38%	42.75% (171)	41.39% (149)	42.50%
Training with farm supply dealers	36.25% (58)	21.75% (87)	10.56% (38)	19.89%
Video tapes	6.88% (11)	9.75% (39)	2.50% (9)	6.41% (59)
Computer assisted instructions	22.50% (36)	12.00% (48)	12.75% (51)	14.67%
Interactive video conferences	10.00% (16)	4.75% (19)	5.75% (23)	6.30% (58)

4. Conclusions

This paper aims at contributing to a better understanding of what extent farmers have been adopting ICTs in three typical Regions of Northern Greece. In addition, particular attention is given to the farmers’ interest in precision agriculture such as global positioning systems and their preferences for extension services for the years to come. Moreover, part of the research findings concerning the preferred educational delivery methods is presented.

From the results, it becomes clear that farmers in the three regions have adopted ICTs at different rates. In particular, farmers from RCM have been more apt to adopt such technologies; in addition, they are more likely to adopt precision farming technologies and practices in the near future. However, the adoption rates are not satisfactory. To encourage adoption, significant incentives in the form of local educational meetings or seminars are required. The above finding suggests that regardless of the number of sophisticated ICTs available, there is a strong preference for personal communication. The preferred emphasis for local educational meetings and farmer involvement in applied research underscores the importance of personal communication. The proliferation of information channels could add to or complement personalized delivery approaches.

The current findings are consistent with recent studies (Michailidis et al., 2008) and suggest that high value rating for ICTs appeared to be associated with social and recreational uses followed by e-mail use, market information, whether information and education use. There are also some examples of individual producers who use ICTs in innovative ways to obtain access to better information or to reduce paperwork.

The above presented analysis limited to the examination of cross-region differences of the extent to which farmers have been adopting ICTs. However, future cross-country research on this issue would be a useful complement to the results presented here.

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EFFECT OF EDUCATION AND EXTENSION ACTIVITIES ON FARMERS KNOWLEDGE ABOUT OILSEEDS PRODUCTION

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Keywords: Education, extension activities, farmers, technical knowledge, oilseeds.

1. Introduction

Oilseeds are taken into account as second nutritional resource of world after grains. These products contain protein as well as rich stores of fatty acids. Using plant oil and proteins instead of animals protein lead to increasing importance of oilseeds. (Shariati & Shahnizadeh, 2000). Around 300,000 hectares of land have already been planted with oilseeds in Iran producing 316,000 tons oilseeds and 230,000 nutritional oil, in fact only 20% of need to nutritional oil is produced inside Iran and rest of it is imported from other countries. In order to meet this shortcoming in agricultural sector, the government intends to increase promoting level of oilseeds planting and producing gradually (Shayan, 2005). Approaching to this purpose, agricultural extension and education module has been established as executive tools of the government to accomplish agricultural products developing which is almost impossible to study their effects on under cultivation land and mere performance of each product regarding the nature of these activities in promoting various product cultivating is neglected and remains unknown. Since scholars have begun to examine above-mentioned purpose. in a research conducted in order to study and determine the most adequate extension methods to develop under cultivation land of Colza in lorestan province by “Agajani” in 2001, it was found out there is meaningful relationship between independent variables such as individual education, visit from exhibitory farms, participating in training classes and dependents variables of Colza under cultivation land. A bout examining effect of educational - extensional activities to develop modified seeds of rice (abundant product) in Gilan province, Motamed (2000) concluded that presentation of education and extension services as main factor led to public compliance of modified seeds by Gilani rice farmer and consequently increases in producing. Izad panah (1999) presented a meaningful relationship between extension education activities and visit from exhibitory farms with increasing of water wheat performance. In another research by Gorji Pour (2001) a bout effects of extension education on rice cultivation developing, it was determined that variables of farmer presence in extension and educational classes and watching related films are meaningfully and positively related to dependents variables of land under cultivation. also another meaningful relationship existed between number of participating times by farmers in extension education classes, visit from related exhibition and field research plans, group visit of farmers from sample farms and connecting amount with extension agents and increase in performance. Khan and Porecha (1994), Agajani (2001), Shaeri (1996), Shariati(1992), Motamedi (2000), and Derakhshan (1999) individually concluded there is meaningful relationship between presented extentional education and developing of under cultivation land increase in production. Marchos Galacher (2001) showed that farmers training have had meaningful effect upon increasing of agricultural production. Alzahrani (1991) in his research including agricultural knowledge in K.A.S concluded the most effective ways of a transmitting agricultural knowledge includes, farm visiting extensional visit and utilizing of TV to expand modern skills and methods. Shibah (1996) expressed in a study about aspects related to promotional methods in K.A.S: TV extension programs, contact between extension agents and client had a remarkable position in transmitting message throughout farmers.

Present survey has been examined the effect of education and extension activities on improve of technical knowledge of farmers about oilseeds farming. In order to accomplish to this purpose, it is essential to response to following question:

What are the learning methods of farming the oilseeds in region of study? What is the relationship between methods of learning of oilseeds farming with technical knowledge of farmers about oilseeds farming? Is there meaningful difference between educated and uneducated farmers in terms of knowledge about oilseeds and yield? What is the forecasting extensional variable/s to improve technical knowledge of oilseed farmers?

2. Materials and Methods

This study was quantitative research and based on survey methods that had used of descriptive-correlation method. Dependent variables were technical knowledge of Farmers and several independent variables (i.e. personal characteristics of the farmers (experience) and agricultural extension and education activities such as the methods of learning technical knowledge of oilseeds planting, number of visits from demonstrational farms, Hours of watching educational films, Number of contact with experts, Number of contact with extension agents, Hours of attend in educational classes, Number of magazines and brochures) were considered. Statistical population of study consisted of 698 farmers of Ardestan County that had cultivated oilseeds (safflower and sunflower). The stratified random sampling has been used in this study. samples were selected randomly from each category. The sample size was estimated through Cochran formula. 130 farmers were selected for the study and in order to increase accuracy of data, were increased to 150 persons. Study instrument was a questionnaire which includes 3 sections, General variables were in the first section, and extension variables in the second one and technical knowledge of farmers in the third one were measured. In order to measure technical knowledge of farmers, 10 questions were designed with supervision of experts which each question include different options. After gathering data, by these experts, farmers were graded about technical knowledge. Questionnaire validity was evaluated by using the "content validity method". And its reliability was confirmed by cronbach's Alpha coefficient that was calculated 0/88 after pre testing on 30 farmers.

3. Findings

The findings showed that farmers have learned oilseeds farming techniques through various ways includes: visit demonstration farms, watching educational films, contact with advisors (extension agents) in farm, Individual experience, Attend in educational classes, contact with expert farmers, reading related brochures and magazines, contact with extension agent in office. The frequencies of farmer's were showed in table 1.

Table 1: Frequency of farmer's by learning method

Learning method	Yes		No	
	Frequency	Valid Percent	Frequency	Valid percent
Visit demonstration farms	56	37.3	94	62.7
Watching educational films	68	45.3	82	54.7
Contact with advisors (extension agents) in farm	68	45.3	82	54.7
Contact with extension agents in office	44	29.3	106	70.7
Attend in educational classes	38	25.4	112	74.6
Contact with expert farmers, friends and colleagues	31	21.7	119	78.3
Reading related brochures and magazines	65	43.3	85	56.7
Individual experience	35	30.43	115	69.57

Technical knowledge of farmers: Tables 2 indicate that the average of farmers technical knowledge score in the field of oilseeds was 6.65/10. The mode of technical knowledge score is 7.6 to 10, then the technical score of farmers in field of oilseeds was more than 7.6, the minimum score was 3 and the maximum was 10.

Table 2: frequency of farmer's by technical knowledge score

Technical knowledge mark	Frequency	Percent	Cumulative percent
Less than 2.5	0	0	0
Between 2.5 to 4.49	55	36.7	36.7
Between 5 to 7.5	35	23.3	60
Between 7.6 to 10	60	40	100
Total	150	100	---
Mean:6.65 variance:3.624 standard deviation:1.9 minimum:3 maximum:10 mode:7.6-10 median:6.5			

Table 3 shows that extension variables have meaningful and positive relationship with technical knowledge of farmers whereas farmer's individual experience doesn't have meaningful relationship with this variable.

Table 3: correlation between extensional variables and technical knowledge

Extensional variables	Technical knowledge	
	R	Sig.
Visit demonstration farms	0.50	0.000**
Watching related educational films	0.516	0.000**
Contact with advisors (extension agents) in farm	0.705	0.000**
Contact with extension agents in office	0.806	0.000**
Attend in educational classes	0.705	0.000**
Contact with expert farmers, friends and colleagues	0.736	0.000**
Reading related brochures and magazines	0.355	0.000**
Individual experience	.082	0.319

**significant at 1% level

Table 4 shows that there is difference between the yields of farms belong to trained and untrained farmers. There is meaningful difference between the yield of farmers whom trained by contact with advisors (extension agents) in farm, contact with extension agents in office, Attend in educational classes and contact with expert farmers.

Table 4: Comparison of yield of farms between trained and untrained farmers

Learning method	Mean (Ton per hectare)		T	Sig.
	Trained	Untrained		
Visit demonstration farms	0.915	0.897	-1.217	0.226
Watching related educational films	0.840	0.841	-0.106	0.916
Contact with advisors (extension agents) in farm	1.725	0.910	-5/913	0.000**
Contact with extension agents in office	1.640	0.849	-5.855	0.000**
Attend in educational classes	1.430	0.800	-5.439	0.000**
Contact with expert farmers, friends and colleagues	1.180	0.800	-4.215	0.000**
Reading related brochures and magazines	0.945	0.931	-2.154	0.330

**significant at 1% level

In order to test this hypothesis that there is a significant difference between the yield of farmers who had learned principles and techniques of oilseeds farming from different methods, "F" test was used. The result is showed at table 5.

Table 5: Analysis variance of yield of farmers whom had learned techniques

Sig.	F	M.s	d.f	S.S	Source of difference
0.000**	15.506	12.593	4	25.186	Between groups
		0.812	145	119.385	Within groups
		-	149	144.571	Total

** Significant at 1% level

The table 5 shows that there is significant difference between the yield of farmers; thus Duncan test was used for categorizing the different groups. In first group, the farmers are classified who learned the technique of oilseeds plantation by this methods: contact with advisors (extension agents) in farm, Attend in educational classes & watching related educational films, Reading related brochures and magazines & visit demonstration farms and in second group, the farmers learned by contact with expert farmers, friends and colleagues and individual experiences are classified.

Table 6: Grouping the Farmers based on methods of learning

Method of learning	number	Group 1	Group2
Contact with advisors (extension agents) in farm	40	0.4571	-
Attend in educational classes & watching related educational films	37	0.7356	-
Reading related brochures and magazines & visit demonstration farms	27	0.5212	-
Contact with expert farmers, friends and colleagues	23	-	1.5510
Individual experiences	23	-	1.3216
Sig.	-	0.050	0.048

In order to investigate impact of independent variables upon dependent variable of technical knowledge, Multivariate regression was applied. Stepwise methods used in this study. In performing Multivariate regression, 4 variables entered in 4 steps and then operation had stopped. At the first step the Number of extension agent's inspection to oilseeds farm was interred in the equation. Hours of attend in the educational classes were entered in second step. At the third step the variable of hours of watching related educational films entered in the equation. And at the last step, the variables of the number of received related magazines and Brochures was entered into equation. After applauding the last variable operation stopped. These 4 variables totally explained 56% of variance of the technical knowledge of farmers about oilseeds. Table 7 shows the standard (β) and unstandard (B) coefficients of independent variables.

4. Conclusions

The nature of extension and education is specific and different from other inputs that have effect on production. Therefore studying their effect(s) separately of other inputs is difficult and considers of their effectiveness on production like the other factors, is not measurable. It is because that usually the effect of extension and educational activities are indirect and via that other variables may effect on performance and productivity of agricultural activities.

Table 7: the standard (β) and unstandard (B) coefficients of independent variables and this meaningfulness of them in the equation

variables	B	.S.E	Beta	T	.Sig
Constant	4.653	0.129	-	36.189	**0.000
Number of extension agent's inspection to oilseeds farm(X1)	0.293	0.046	0.468	6.377	**0.000
Hours of attending the educational classes(X2)	0.314	0.057	0.256	5.502	**0.000
Hours of watching related educational films(X3)	0.258	0.107	0.016	4.806	*0.018
Number of received related magazines and brochures(X4)	0.711	0.148	0.222	2.3999	**0.000

** & * significant at 1% & 5% level

The liner regression of dependent variables of farmer's technical knowledge about oilseeds is present as follow:

$$Y = 4.653 + 0.293 X_1 + 0.314 X_2 + 0.258 X_3 + 0.711 X_4$$

In this study we found that the oilseed farmers had been learned the principles and techniques of oilseed farming from different methods. We could divide these methods in tow groups: educational and non educational methods. The significant and positive relationship between the variables which demonstrate doing extension and educational activities with technical knowledge of farmers about oilseeds have been shown the positive effect of extension and education activities on technical knowledge of farmers and via that on increasing yield of oilseeds farms. Finding of study about the meaningful difference between the yield of educated and uneducated farmers cofirmed the previous result. In this field 3 extension activities include visit of demonstration farms, watching related educational films and reading related brochure and magazine didn't had meaningful effect on yield of farmers. The reason of this finding may be refers to this that in this 3 methods, the control of learning process of farmers is difficult or impossible. Analysis variance of yield of farms belong to the farmers whom had learned principles and techniques of oilseeds farming from different methods showed that there is significant different between groups of farmers. The Duncan test separated farmers in tow groups. First group consisted of the farmers whom had learned techniques of oilseeds farming from extension and educational activities such as Attend in educational classes and contact with advisors (extension agent) in farm and another group consisted of the farmers whom had learned this technique from non educational methods such as contact with expert farmers, friends and colleagues and individual experiences. Coefficients of variables which entered in regression showed that the effect of contact with farmers in farm (Number of extension agent's inspection to oilseeds farm) is more than other extension methods ($\beta=0.468$). Secondly the effect of extension and educational classes was more than other methods. Extension agent's inspection to farm is a kind of individual extension methods and farmer's learning by this will be more than other methods. Extension educational classes are a kind of group extension methods and its effect are more than watching related educational films and reading related Brochures and magazines as mass methods. Therefore this result confirmed the theories beyond effects of educational methods on learning that says the effect of individual educating methods are more than group methods and effect of group methods are more than mass methods.

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TECA – AN INFORMATION AND COMMUNICATION SYSTEM FOR KNOWLEDGE SHARING OF PROVEN TECHNOLOGIES FOR SMALLHOLDERS

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Keywords: Technology, smallholder, information and communication tool, documentation, best practices.

1. Introduction

The relatively recent trend of moving advisory systems away from the public sector is mainly affecting regions with medium to large-scale farmers. Extension services to smallholder farmers that face poverty and food security risks are still primarily in the hands of public extension systems and NGOs, whose work usually relies on cost-free available information. However, according to the Comprehensive Framework for Action of the High-Level Task Force on the Global Food Security Crisis (2008), smallholder farmers are key agents in ensuring resilient food security and poverty alleviation worldwide. The same document recognizes that production at smallholders' level could more than double in most countries by using known and available technologies. Hence, the Research and Extension Division of the FAO has developed an information system that provides a platform for knowledge sharing on proven technologies and good practices for smallholders – TECA (www.fao.org/teca).

TECA has been used as a repository of knowledge by more than 20 partner organizations. The lessons learned by these partner organizations during the process of documenting technologies have been shared with FAO and taken up by the TECA development team for the improvement of the system. As a consequence, TECA has evolved into a more participatory information and communication system.

This article addresses the issue of engaging organizations in knowledge sharing on technologies for agriculture through TECA. The first section describes the fundamental functioning of TECA regarding the selection and description of technologies. The following section presents the recent improvements made to the system. This is then followed by a discussion about the uses of TECA that are enabled by the new platform. It concludes with a discussion about the challenges that this initiative faces in the near future.

2. Technology for agriculture - database (TECA phase I)

TECA was designed as a system for organizations and individuals supporting small-scale farmers with the objectives of containing useful, reliable, well-classified, well-structured and easily understandable information that had been validated for adoption in similar farming systems. Thus, the selection of technologies to be made available online follows guiding principles to help create a content that primarily addresses the challenges of poor smallholder farmers. These guiding principles are the requirements of validation of the technologies with farmers and in the contributions of the technologies towards food security, increase in yield, increase in land and/or labour productivity, reduction of post harvest loss, and environmental sustainability.

TECA added description and classification standards to these principles for the selection of technologies, thus assuring that the technologies can be easily adopted with a good probability of success. An example of technology classification in TECA is shown in Figure 1.

Figure 1. Header of a technology description in TECA following the technologies classification standard.



Partner organizations have recognized the importance of TECA in systematizing otherwise dispersed information on their projects' results, in a way that facilitates the up-scaling of technologies use. However, it was also pointed out the TECA system did not contain sufficient interactivity. The Department for International Development of the United Kingdom (DFID), in its recommendations to the TECA management team, underlined the need to make *a shop window into a market place*. This means that users should be able to communicate using the TECA system and that the extension organizations' information needs should be expressed on the web site.

The following section describes the improvements made on the TECA platform to enable the wide participation of users and a new approach on the application of TECA in knowledge sharing.

3. Technology for agriculture - knowledge sharing information system (TECA phase II)

TECA is built with a community-oriented content management system. This means that the web site is customized with little programming knowledge and that TECA now includes web-based communication tools that can be managed by partner organizations. Examples of TECA features that enable users' interactivity can be seen in Figure 2.

One of the fundamental characteristics of the new phase of TECA is that partner organizations can now choose to have either full editor user rights, and thus contribute with content using the TECA system at central level (FAO server), or their own decentralized TECA system. Partner organizations with a decentralized system version will be autonomous in its use and management. They will also be able to customize the web site contents and profit from the full- flexibility of the communication and knowledge sharing tools provided by the system.

Figure 2. Details of TECA's pages showing modules that enable the creation of fora, blogs and comments; consultation with experts form; media content on technologies descriptions; and the rating system for technologies descriptions.

The screenshot displays the TECA interface with a sidebar menu on the left containing options like Blog, Blog A, Book, Color, Comm, Contai, Conter transi, Databi, loggin, and Forum. The main content area is divided into several sections:

- Expert on:** A list of topics including 'Production technologies - Animal production', 'Natural resources management technologies: Natural resources management', and 'Disaster risk reduction'.
- Category: *** A dropdown menu with the selected option 'Production technologies - Animal production'.
- Question: *** A text input field with a placeholder 'Enter your question here. It'. Below it, there are links for 'See photo 1.' and 'See photo 2.'.
- Rating system:** A section showing 'Average: Your rating: 3 Average: 4 (2 votes)' with a star-based rating interface.
- Media content:** A photo of a traditional grain store with the caption 'Traditional grain store' and a description 'to 9 and improved'.

A list of content types that can be created by default in TECA is presented in Figure 3.

Figure 3 – Page in TECA where system administrators can choose the type of content they want to create.

The screenshot shows the 'Create content' page in TECA. The header includes the FAO logo and the text 'Food and Agriculture Organization of the United Nations'. The main content area is titled 'TECHNOLOGY FOR AGRICULTURE' and 'proven technologies for smallholders'. The 'Create content' section lists several options:

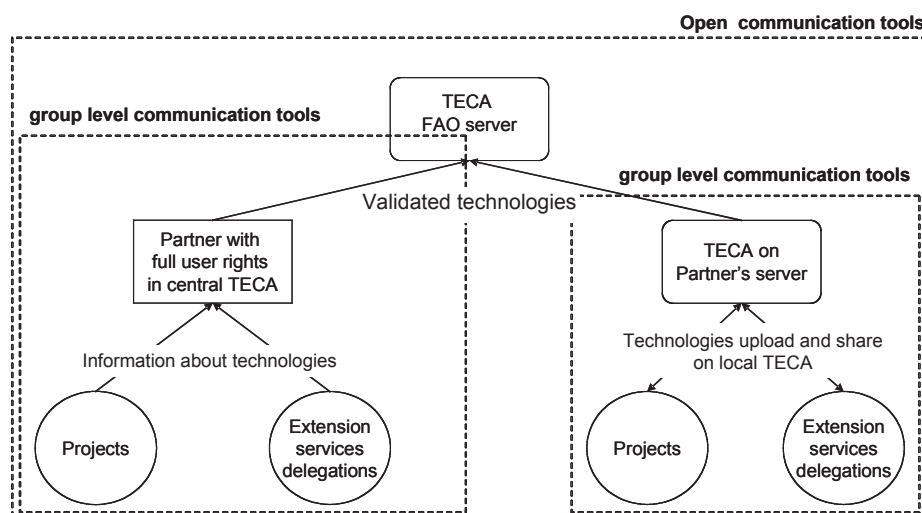
- Book page:** A book page is a page of content, organized into a collection of related entries collectively known as a book. A book page automatically displays links to adjacent pages, providing a simple navigation system for organizing and reviewing structured content.
- Events:** Latest events.
- FAQ:** A frequently asked question and its answer.
- Group:**
- News:** Latest news.
- Newsletter issue:** A newsletter issue to be sent to subscribed email addresses.
- Page:** A page, similar in form to a story, is a simple method for creating and displaying information that rarely changes, such as an "About us" section of a website. By default, a page entry does not allow visitor comments and is not featured on the site's initial home page.
- Poll:** A poll is a question with a set of possible responses. A poll, once created, automatically provides a simple running count of the number of votes received for each response.
- Story:** A story, similar in form to a page, is ideal for creating and displaying content that informs or engages website visitors. Press releases, site announcements, and informal blog-like entries may all be created with a story entry. By default, a story entry is automatically featured on the site's initial home page, and provides the ability to post comments.

A decentralized TECA serves as a working tool for the production of “validated” knowledge that can later be shared on the main (global) platform. People involved in projects can input the information they have on a technology and ask for feedback or revision. Discussion groups can be created on different topics, using TECA's fora, blogs, and boxes for comments on each technology description page.

Partner organizations using TECA on the FAO server will only be able to upload validated and final technology descriptions online. However, these partners can still use TECA web-based communication tools, both at a group level (within a group of users created by the organization administrator) or at a global level (participate on global fora, blogs).

The upload of new descriptions of technologies and the use of web-based communication tools both with centralized and decentralized systems is diagrammed in Figure 4.

Figure 4 – Two levels of TECA use: central system on the FAO server and decentralized system on the partner organizations' servers.



4. Development strategy

The development of new functionalities in TECA *per se* has little impact on the adoption of TECA as a tool at the global level. The system needs a strategy to accomplish the vision of being globally adopted and recognized as a reference in knowledge sharing on technologies for smallholder farmers.

The management team of TECA needs to engage with the major organizations working on agricultural research and extension in order to promote TECA as a widely-used information system. This means, for example, involving the Consultative Group on International Agricultural Research (CGIAR) Alliance and promoting the adoption of TECA in its centres, promoting the use of TECA in United Nations agencies, especially in the Food and Agriculture Organization (FAO) and International Fund for Agricultural Development (IFAD), and in engaging national agricultural research and extension systems in its use. The use of TECA by these organizations can be done in diverse ways. The next paragraphs provide some examples.

So far, tailor-made platforms with features in common with TECA have been used to establish virtual networks between researchers, extension agents and farmers. TECA can be used as a standard system for this, by being adopted by national research and extension systems. This will engage and familiarize users with the tool and facilitate its use to describe locally developed proven technologies. The same can be applied to topic-specific programmes that involve regional networks such as Special Programmes for National Food and Nutritional Security.

Another area of use is in project management in the United Nations and specialized agencies, such as FAO, IFAD and development banks, as well in NGOs working on technology development and extension in rural areas. Some technical cooperation projects pay companies to create and manage their project management web sites. TECA provides a ready-to-use site in which content is customizable with little programming knowledge.

Additionally, by providing a standard for the description of technologies validated by farmers in field projects, TECA can contribute to an easier up-scaling of each project's results. Standard descriptions would allow everyone centralized access to short descriptions. Project participants could still provide links to articles and other references on the subject (articles, web sites, etc). In this way, TECA pages and technologies descriptions can act as a portal and directory, rather than replace other knowledge sharing means

Finally, another area of interest for the use of TECA as a support for informative systems is rural radio. Community radios have web sites with news, podcasts, and repositories of past emissions content. By integrating TECA into these systems, relevant descriptions can be used to provide broadcast content and receive feedback from the broadcast audience. TECA features allow making available audio files and comments on technologies online.

5. Discussion and Conclusions

TECA has the potential to contribute towards poverty alleviation by supporting the sharing of proven technologies and practices for smallholder producers. However, it faces major challenges in achieving this.

Transforming TECA into a widely used reference system requires that the major players in technology development and transfer actively engage in content development. This means a need for human resources in each partner organization to review their portfolios of validated technologies, document technologies according to the classification and description standards, and review and edit records.

The decentralization of TECA will allow partner organizations to use TECA functionalities for their own benefit, adapting TECA to their institutional needs. However, TECA runs the risk of being widely used at the local level as a communication tool, with few proven technology descriptions being uploaded to the central system in FAO. The effort of the TECA management team could again result in dispersed technologies descriptions without enough quality to be shared on the reference central system. This means that the TECA management team will always have to closely collaborate with its partners and promote the uploading of validated and well-described technologies onto the central server.

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- FAO. TECA, Technologies for Agriculture. www.fao.org/teca.

COMMUNICATION OF SUSTAINABLE AGRICULTURAL DEVELOPMENT: THE APPLICATION OF FOLK AND NEW MEDIA

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Keywords: Communication, sustainable agricultural development, folk media, new information technologies.

1. Introduction

Agricultural extension (AE) plays a crucial role in communicating innovations to agricultural sector (Karami & Fanaee, 1995). With regard to this point AE and communication theories (models) have evolved from one-way/informative to two-way interactive patterns during the past decades (Gitta, 2000; Mefalopolus, 2003). Nowadays, it is recommended that educational activities like AE combine with entertainment aspects, to become more effective (Olagide, 2003; Tufte, 2001). Based on this principle, folk media (FM) such as drama, songs, festivals, stories etc. are very useful to provide education with entertainment (EE) in development programs like SAD. On the other hand, Information and Communication Technologies, that are generally named new media (NM) in this paper are also important, because they facilitate distance communication/ education, marketing and so on. Therefore FM and NM have their own importance and application in the process of SAD.

The question is: how can we use them for SAD purposes? With regard to their substantial differences, is there a substitutive relation between them or they can complicate each other's role? This paper is going to answer these questions. The aim of the paper is to explain a model for using media in SAD. The objectives of the paper are:

- To introduce FM, NM
- To introduce SAD and its aspects
- To explain how to use FM and NM in SAD.

Research method of this study was literature review and analysis of secondary data.

2. Folk media and new media

FM are those kinds of media that use traditional methods of communication such as mimes, theater and songs instead of new technologies (Salamanzadeh, et. al., 2000). Major characteristics of them are: diversity in form and content; flexibility; cultural integrity; attention to disadvantaged people; entertainer; provider of immediate feedback; facilitator of education/ learning (Theuri, 2004; Sharma, 2003; Matur, 1997). They have been used for different purposes such as: organizing local people for voluntary activities and in opposition of disease in India (Sharma, 2003); control of different diseases such as tetanus, syphilis and AIDS in Africa (Panford, et. al, 2001; Van der Stichele, 2003) and preserving wild life in Cameron (De Groot, et. al, 1995).

NM are media such as telephone, TV, video, tele-text, voice information systems and network connection equipments that facilitate diffusion and application of information (Warren, 2002). These media have characteristics such as: using advanced technology; facilitating distance communication and education; providing access to mass information; management of different activities; and labor saving (Warren 2002; Tiffin & Tiffin, 2005). Some applications of NM are: marketing facilities in England and Wales (Warren 2002; Tiffin & Tiffin, 2005); providing scientific information in African poor regions (Kenny, 2000); facilitating inter/ intra city communication (Moss, et. al, 2006); online sale in USA (Forman, et. al, 2005); internet café for rural youth in

Norway (Laegran, 2002) and development of small and medium- sized enterprises in different countries (Fink & Disterer, 2006).

3. Sustainable Agricultural Development

From 1970s, when the term sustainable development (SD) was introduced for the first time by World Commission on Environment and Development (WCED), a lot of definitions were presented for national SD and its sub sets such as SAD. Because of this wide range of SD and SAD definitions, we do not want to present SAD definition here, but the main point is that SD and SAD should be considered in a holistic or systemic view. Therefore, SAD consists of aspects more than farming/ agriculture as a technique. These aspects are (Shahvali, 2005; Gilman, 1992; Pearce, 2006; Segnestam, 2002; Karami, 1995):

- Economic- technical: issues such as investment, profitability, application of resources, land uses, labor forces, etc;
- Social- cultural: issues such as population, patterns of communication, transportation, health, education, laws & procedures, etc; and
- Environmental: issues such as climate changes, fossil fuel usage, soil organic material, wild life preservation, waste management, natural resources conservation, etc.

4. Why FM and NM integration is necessary for SAD?

The above mentioned points show that FM & NM have their own applications in the process of SD or SAD. Based on the Triangulation Principle (adopted from Patton, 1987) it is obvious that if we use FM and NM collaborative/ integrative, each one could deal with some parts of SAD issues. More over, the necessity of FM and NM integration could be proved by some other theories.

One of the well known theories we can use for this purpose, is "Think Globally, Act Locally". Liu (2005) introduces different degrees of localization in a continuum of "global integration" and "local adoption" trends. These degrees are: ethnocentric, polycentric, regiocentric and geocentric. He refers (ibid.) that localization does not mean that every thing should be localized. An organization should be more flexible or more adaptive to the local environment. Therefore it should focus on a combination of global integration and local adoption. If we want to implement the above strategy in using FM and NM, it is clear that we should seek a strategy to use them cooperatively.

Mesdag (1999) introduces the "duration of usage" hypothesis that refers to the background of a thing in a definite community. It focuses on things like visual arts, music, architecture, language, social behavior and modes of dress. In common with eating and drinking habits all these things have evolved over time. But since the Second World War, people of the developed countries have been adopting different things such as foods from other countries and adapt them to their conditions by combining their characteristics with local ones. Therefore, a "cross- cultural leap" has occurred and it caused some unchangeable habits changed. In fact "cross- cultural leap" has made "duration of usage" to be modified. According to the "duration of usage" hypothesis, FM have a large amount of acceptability in the local regions while NM do not have this quality. But with regard to the concept of "Cross- cultural Leap", it is possible to use FM and NM in cooperation to each other so that they overcome each other's short comes by their own strengths.

Shahvali (1994) announced that communicative nature of AE could be considered in two strategies:

- Empirical - rational: people are rational, thus they certainly accept useful information.
- Normative: people's opinions and beliefs maybe obstacles for adopting new information. Therefore AE should choose a procedure to deal with customers' meaning system.

According to the later strategy, AE as a communication process should pay enough attention to customers' traditional communication systems like FM and integrate them to newer outsider ones such as NM to become more successful (ibid).

5. How to integrate FM & NM

Probably the simplest strategy for integration FM & NM is distributing different responsibilities between them based on their capabilities. As it's mentioned in "Functionalist theory", different sub- systems of a system should either do their responsibilities or cooperate each other so that promote their own performance and consequently the overall performance of the system (Shahvali et al, 2003). Piccinini (2004) introduces two types of functionalism:

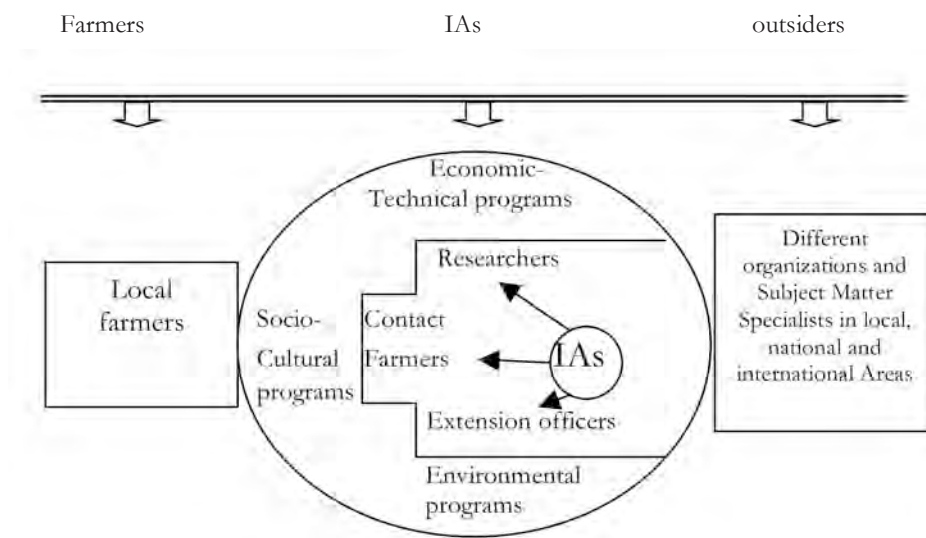
- Functional Analysis (FA): emphasizes on the function and the role of each sub- system.
- Mechanical Analysis (MA): focuses on the physical structure of the sub system.

In the other hand, the performance of a sub- system may be affected by either its function/ role or by its physical structure. These two types of analysis could be used in explaining a model for media integration for SAD.

It is possible to develop a model for FM & NM integration based on the above mentioned points. With regard to this fact that the supposed model is a communication model, new trends of communication patterns such as interactive, participative and two- way relation should be also regarded. More over, there are a lot of cultural, social, status and professional inequities as obstacles of two- way- interactive communication. To reduce this problem, Wallace (1994) recommends "Intermediate Associations" (IAs) that consist of local people or their representatives in one hand and official staff in the other hand. Such an association can works as a bridge between farmers and development organizations. These IAs are the main actor in the supposed model. Figure (1) shows the general model for FM and NM integration. As introduced in the previous chapter, integration of FM & NM in this model could be considered functionally or mechanical as. Tables 1 and 2 show these kinds of integration.

6. Conclusions

FM and NM have their own strengths and weaknesses. The most attractive point is that to much extent, each one could overcome weaknesses of the other one by its strengths. I.e. cultural integrity and paying attention to different social statuses especially disadvantages is one of the major characteristics of FM. Theuri (2004) reports some evidences from Kenya where folk/ local media had a lot of success in development programs such as family planning, health, nutrition and wild life conservation for different social status of the community. NM in the other hand are week in this quality. I.e. Warren (2002) reports that in Western Europe, farmers with higher levels of literacy and planting area could afford NM utilization. Thus they couldn't service the whole community like FM, but NM are significantly useful for purposes such as labor saving, decision making, distance communication and management of different activities (ibid).

Figure 1: A general model for FM & NM integration**Table 1: Functional integration of FM & NM**

Communication process	Type of media	Sustainability aspects		
		Economic- technical	Socio- cultural	Environmental
Inter community	NM	Providing resources and credits (Warren, 2002)	Connection outer organizations (Rowely & Portterfield, 1998)	Measurement of climate changes and soil organic matter (Tiffin & Tiffin, 2005)
Intra community	FM	Labor force training (Okafor, 2004)	Health and population control (Van der Stichele, 2000)	Conservation of wild life (De Groot et al, 1995)

Table 2: Mechanical integration of FM & NM

Sustainability aspects	Type of activity	Requirements	Proper media
Economic-technical	Farm management	Hard ware and software facilities	NM (Warren, 2002)
	Training of producers	Familiarity with local conditions in one hand and scientific findings in the other hand	FM (Theuri, 2004); NM (Warren, 2002)
Socio- cultural	Health and population control	Public motivation, creating proper cultural atmosphere for sustainability	FM (Sharma, 2003; Tufte, 2001)
	Transportation	Facilitating connection to the outer world	NM (Rowley, & Portterfield, 1998)
Environmental	Climate changes	Measurement and forecasting climate changes	NM (Tiffin & Tiffin, 2005)
	Wild life conservation	Protecting life cycle and life diversity	FM (De Groot et al, 1995)

Thus a system should be available to determine how to integrate and use FM & NM. Such a system should be familiar with local capabilities, arts, cultural norms and communication patterns in one hand and communication infrastructures, instruments and necessities in the other hand. IAs could be very helpful for these purposes.

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THE ROLE OF THE 4-H CLUB PROGRAM IN POLAND

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1. Introduction

4-H club programs emerged as an American idea in the early 1900's. These clubs expanded U.S. Extension's capacity by adding a youth audience to its mission. According to Reck (1951), 4-H clubs implemented hands on learning and practical education to youth in rural America. American 4-H would mature to chart a history defined by science-based, non-formal educational (NFE) activities that are family and community-based (Wessel & Wessel, 1982).

The 4-H non-formal education idea migrated and adapted outside U.S. borders. Between 1920 and 2002, 37 non-U.S. countries would emerge their version of the 4-H idea with organizations named 4-H, 4-I, 4-K, 4-C, 4-S, 4-F, and 4-A (Cooperative State Research Education and Extension Service, 2008). A key to success of these programs was molding the core 4-H idea to the cultural, national, and local needs of each country. In a 1951 Cornell University conference for leaders of international youth programs, Dr. Hsin-Pao Yang said, "The cardinal principle governing the adaptation of 4-H Club work in other lands is the recognition of local needs and the importance of taking all the necessary steps to adjust the new system to meet these needs" (Federal Extension Service, 1958, p. 44).

Each non-U.S. 4-H system ranges in maturity and development. In a conversation about international 4-H developments, United Nations Senior Rural Youth Development Officer from 1993-2004, Bill Seiders, offered a timeline (R. William "Bill" Seiders, personal communication, August 26, 2008). Seiders timeline suggested that most early non-U.S. 4-H developments occurred within three periods of time. These included Pre-WW II, Post WW II, and during the U.S. Aid land grant movement of the 1960's. Additionally, new 4-H programs would form or be revitalized in the East Europe transition after 1989.

The post-communist changes in the early 1990's had a great impact on the formation and implementation of education in Central and Eastern Europe (Mitter, 2003). Specifically, Polish education faced a chaos of national and international opinions about what it should look like, linked with a low order in national priority (Tomiak, 2000). But just as the country was exploring new ideas in the formal education classroom, non formal education systems (NFE's) such as 4-H were developing to support youth. As a result, some 400 4-H clubs containing 7,000 members are active in Poland today.

The growth and staying power of the Polish 4-H movement post 1989 suggests that it was beneficial to Poles. In this turmoil of national and educational policy changes, Poland customized 4-H to benefit Polish youth and communities at the local level. Brennan (1997) stated that non-formal education systems (NFE's) can form as a quick reaction to educational needs when formal education is slow or absent in a response to need.

2. Purpose and Objectives

The Polish 4-H Foundation, Polish Agricultural Universities, the Polish Extension System, and USDA Foreign Agricultural Services all hold a common desire – to better understand and document the benefits of 4-H in Poland. However, no formal evaluation to determine the benefits of Polish 4-H has been conducted (K. Boczek, personal communication, June 29, 2008).

Polish Professor Dr. Kazimierz Wiek noted that this research gap perpetuates a lack of understanding and awareness of Polish 4-H (K. Wiek, personal communication, June 19, 2008). Additionally, Polish Professor and key Extension leader Dr. Joseph Kania noted that the lack of research also situates Polish 4-H in an environment of unstable funding (J. Kania, personal communication, June 19, 2008). Lastly, current USDA Agricultural Counselor, Eric Wenberg, encouraged the research to further document 4-H in Poland.

The authors of this paper therefore had the following three objectives:

1. To review and expand the literature in 4-H system evaluation.
2. To describe characteristics of the Polish 4-H system in the Świętokrzyskie Voivodship (geographical region).
3. To explore the benefits of Polish 4-H in the Świętokrzyskie Voivodship.

3. Literature Review

Objective 1

Research completed on American 4-H include evaluations taken from various perspectives in the 4-H system. This includes youth, 4-H leaders, 4-H alumni, Extension staff, volunteers, and 4-H parents. In 1987 American researchers investigated a systems approach to studying 4-H benefits called “Does 4-H Make a Difference” was published (Ladewig & Thomas, 1987). Here Ladewig and Thomas researched 4-H benefits by a national telephone survey of 710 randomly chosen 4-H alumni. The survey also included 743 former members of other youth organizations, and 309 nonparticipants in youth organizations. Impact was measured by life skills learned.

4-H alumni were highlighted again in a 2003 Nebraska study of life skill development through 4-H clubs (Fox, Schroeder, & Lodl, 2003). Here the researchers used a descriptive mixed methods paper survey developed by a focus group of 4-H leaders, volunteers, alumni, and Extension staff. The survey was given to 264 purposefully sampled alumni (representing a range of involvement, years of membership, and project interests) in Nebraska. Participants completed quantitative and qualitative questions pertaining to their perceived life skills and rank because of 4-H club experiences.

In 1997 a study by Taylor-Powell, Hutchins, and Reed (1997), 566 groups of Wisconsin 4-H leaders were surveyed across 48 counties in Wisconsin. This study particularly focused on the community service benefit aspect of participating in 4-H.

In 1999 a major study of 4-H clubs in New York was completed (Rodriguez, Hirschl, Mead, & Goggin, 1999). The study included several phases. First, 12 focus groups were held to represent geographic and rural/urban regions of the state. These groups contained 4-H Extension staff, club leaders, program assistants, volunteers, 4-H club members, and 4-H parents. These included an examination of youth development programming in 4-H, and to inform the construction of a 4-H member survey. The survey was sent to 14,000 eligible youth in 5th-12th grade. 3198 completed surveys were returned. Conclusions found that 4-H youth had gains in the areas of public speaking, problem solving, goal setting, leadership skills, planning skills, self-confidence, citizenship, communication skills, understanding diversity, money management, improved performance at school, expanded horizons, organizational skills, respect for others, patience, loyalty, tolerance, real-world experience from hands on projects, and a desire to make a difference in their communities.

Research evaluating European 4-H systems includes an ethnographic study conducted in 2002 by a U.S. researcher comparing the Wisconsin 4-H and Finnish 4-H systems (Staude, 2002). Staude noted that though 4-H of various countries share the motto “learn by doing”, the outcomes produced by 4-H are very different. “In the United States projects focus on life skill development” while 4-H in Finland produced an outcome in “some type

of income for the members” (Staude, 2002, p. 62). This example shows that researching a non-U.S. 4-H system requires specific attention in methodology. The use of a U.S. 4-H measurement instrument without review would be ethno-centric.

Additional research on European 4-H has been completed by Denmark 4-H in 1989. Here Denmark surveyed its 4-H members and looking at 4-H as one of several voluntary organizations in 1996 (K. Madsen, personal communication, September 1, 2008). These documents only exist in the native language.

4. Methods

Five populations of Polish residents were sampled for this study, including 4-H members, 4-H leaders, 4-H parents, 4-H alumni, and school administrators. A list of the (74) 4-H clubs of the Sweitokrzyzskie Voivodship was provided to the research team. It was estimated that these 74 clubs held a total of 3,000 4-H members. A cluster sample approach was taken. Nine 4-H clubs of the total 74 were chosen by convenience sampling to represent the clusters. All five populations (members, alumni, leaders, parents, administrators) within each chosen cluster were invited to take the researcher developed survey. Surveys were hand delivered and retrieved from each club.

Participants’ perceptions of the benefits of Polish 4-H were measured by survey instrument. The instrument was 28 questions long, including multiple choice and likert type questions. Additionally, the instrument included questions allowing participants to provide their own comments regarding their perceived 4-H benefits. A Cronbach’s Alpha test measured the reliability of the instrument to be .806.

5. Findings

Objective 2

Of the 97 total respondents, 66% identified themselves as 4-H members, 3.1% as 4-H alumni, 7.2% as 4-H parents, 19.6% as 4-H leaders, and 4.1% as school administrators. 70.1% of respondents rated themselves as having been a 4-H member for 1-4 years, and 88.7% of respondents identified as spending 1-5 hours a week involved in 4-H activities. 85.6% of respondents identified as female. 84% of respondents said that their 4-H meetings occur at their school (63.9% during school hours, 21.6% after school hours). Additionally, 85.6% of respondents identified their 4-H leader as a teacher in their school. Respondents rated 4-H activities from a list of choices, responding that environment/ecology (86.6%) and Polish art and tradition (89.75%) are the two most popular projects.

Objective 3

73.2% of respondents said that 4-H positively influences students’ marks in school. 12 of the 97 respondents said they were able to visit the United States through a 4-H exchange program (8-Purdue, 4-Michigan State University). Respondents strongly agreed or agreed that because of 4-H they are active in community service (90.75%), complete hands on learning projects (95.8%), and make new friends (87.6%).

Polish 4-H is Perceived to Help Youth Learn About: (N=97)

Subject Areas	M	SD
Ecology	1.67	.574
Improving English Communication Skills	2.91	1.411
Improving English Writing Skills	2.95	1.407
Solving Problems	1.92	.749
Polish Traditions	1.41	.535
Communicating Ideas	1.65	.644
Working as a Team	1.49	.668
Leadership	2.42	.878
Polish Art	1.71	.655

*Scale: A=Strongly Agree, B=Agree, C=Not Sure, D=Disagree, E=Strongly Disagree

Activities members complete because of involvement in Polish 4-H: (N=97)

Activities	M	SD
Become Active in Community Service	1.59	.658
Do hands-on Projects	1.46	.578
Make Friends	1.61	.767
Become Leaders in Their Local Community	2.38	.879

*Scale: A=Strongly Agree, B=Agree, C=Not Sure, D=Disagree, E=Strongly Disagree

Respondents were additionally given an opportunity to express what they felt they had gained from being involved in 4-H through an open ended question and hand-written answer. Themes included learning about local Polish art and culture, learning about ecology, making positive environmental improvements in their local community, making friends, learning to work in a team, and building self confidence.

6. Conclusions and Recommendations

Participation in the Polish 4-H program yielded positive benefits to its members and their communities. As a curricular aid to teachers, youth experienced new ways to study about their local community and culture, their environment, and be proactive in positive engagement in both.

This survey was undertaken in one of Poland's 16 voivodships. Further study of Polish 4-H could include conducting this survey in other voivodships to compare results. Additionally, use of the case study method could further develop research on Polish 4-H, by including analysis from in- depth interviews, club artifacts, and club documents.

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ADVANCING INFORMATION AND COMMUNICATION TECHNOLOGIES IN PARTNERSHIP WITH COMMUNITY COALITIONS

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Keywords: ICTs, distance learning, coalitions, collaborations, partnerships.

1. Introduction

Historically, Extension's mission has included offering continuing education for professionals, individuals and clientele. Research supports the necessity for the use of ICTs to conduct Extension educational outreach efforts. Brian M. McCann (2007) noted “that although the number of distance learning opportunities continues to expand, the critics of distance learning continue to express concern about the lack of direct interaction between instructors and students found in the more traditional face-to-face environment. Thus, they suggest that providing highly interactive components in the distance learning environment is the key to addressing these concerns and assuring the equivalency of the quality of these courses. Rogan and Simmons (1984) acknowledged the advantages and disadvantages of the then new distance delivery systems, focusing on three basic types: video-conferencing; computer conferencing; and audio-conferencing. They identified that a disadvantage of distance delivery systems is the lack of informal, one-to-one social interaction and the challenge the system had in creating an atmosphere of group rapport. Moore and Kearsley (1996) concluded that most distance education learners want some kind of interaction with their instructor and fellow learners during an educational event. This may be for purely social reasons or for getting feedback on their ideas and questions.

Frances Butterfoss (2006) notes the functions of community coalitions are: “network and share information, plan and coordinate, implement specific projects, provide technical assistance and training, and advocate”. It has been stated that “some constraints to ICTs in rural areas are surmountable, others require a shift in both human and organizational communication in working patterns which may take longer to evolve, (O’Farrell, Norrish and Scott, 1997). Local coalitions are a means to extend Extension’s reach within communities and assist with implementation and acceptance of change. “We can have a greater impact on our goals by using networks and coalitions as major tools to multiply our power and efforts. ...We can do a great deal when we join efforts with those of other individuals.” (Elizabeth B. Bolton and Lisa Guion, 2008). A study conducted by University of Wisconsin, USA concurs in that a community coalition/partnership, “when successful, brings issues to the forefront, enhances inter-group cooperation, increases access to funds, facilitates pooling and stretching of resources, reaches new audiences, and most importantly addresses complex community issues that on one organization or institution can tackle alone” (University of Wisconsin, 2003). The collaborative work of Extension Educators has been supported by “access to print and web-based resources which provide research-based content....and offer guidelines for community collaboration, by face-to-face conferences or training sessions, by informal networking with colleagues and others” (University of Wisconsin, 2003).

2. ICTs and Cooperative Extension

Extension educators have traditionally performed face-to-face education with the public. In these times of increased use of information and communication technologies (ICTs), Distance Learning has been more in the forefront of outreach education. Still, in the context of Cooperative Extension, distance education has mostly focused on training opportunities for Extension personnel. Nowadays, given the current ICTs, Extension is in a

better position to explore ways to educate the public using media outside the typical face-to-face seminar/classroom teaching. Information sharing in the 21st century opens great educational possibilities, as described below.

3. Flexible Extension Education

The main focus for Extension education in the ICT environment is to keep information flexible. Simply put, Extension information to targeted users should be made available in formats which are compatible or accessible by any kind of modern device. *Really Simple Syndication* (RSS) feeds are a way to achieve this. RSS offers a standardized web feed format that allows educational information to be updated regularly. Examples of this information are Extension blogs, news releases, and audio/video courses.

RSS allows potential Extension users to “subscribe” to selected Extension program websites (e.g., Master Gardeners, 4-H, Family & Consumer Sciences, etc) of their interest. Then they can get automatic updates on information related to those areas. Furthermore, the Extension user could aggregate all of these “feeds” and create one holding place for his or her convenience.

The Opportunity. Imagine your Extension website for the user: RSS orange icons for each major program that allows users to select getting updates on weather forecasts for agricultural users, food safety alerts, home gardening news, weather forecasts, home maintenance schedules, the next scheduled community meetings/trainings such as the 4-H club meeting, etc.

The Challenge. This type of format DOES NOT demand a change in response rate from county Extension educators. Typically, county agents or educators respond quickly to emails, telephone calls, letters, etc. What this format demands is instantaneous response via the web. The challenging part is to bring Extension staff and faculty up to speed in this kind of technology. People currently are accustomed to updates, instant news, and rapid response via the web. This is the era of Twitter, Facebook, MySpace, etc. Extension faculty and staff will need to be able to compete with the media on providing adequate, unbiased and research-based information on an instantaneous matter. On the other hand, Extension could continue to use RSS feeds to simply have people sign up for updates, whenever there is one. In visiting several Extension related RSS websites, it was not surprising to see that the last update was done 2 years back. This is the danger of technology when not used frequently enough to make a difference. Therefore, it is best to discern which type of program or update is worth attaching to a RSS. A commitment of updating the information monthly or when appropriate is critical to consider.

It is important for Extension educators to have the ability to respond quickly to requests, emails, telephone calls, letters, etc. Extension educators must also incorporate current strategies to extend information via training by the use of the latest ICTs. One program being used by Extension and faculty is *Elluminate Live!*. *Elluminate Live!* is a web conferencing tool available to faculty, staff and Extension Educators at NCSU via the DELTA group. It is also available worldwide. It can be used for distance learning, multi-site meetings, presentations and collaboration. PowerPoint slides can be presented and both voice and video are available. In short, “it is a interactive environment for communication, presentation, interaction and instruction that allows web conferencing over the internet from your desktop. Using tools such as Elluminate can help you reduce both travel cost and travel time” (IT 2009) .

Elluminate Live! is used by Extension Educators to extend educational outreach to Extension field faculty, community partners, clientele such as agricultural commodity groups. Community partners may be trained to host and or conduct training via Elluminate with the assistance of the Extension Educator. Training or meetings can take place in a local Extension Center, public library, conference room, school, etc. that have computers connected to the internet. This educational tool saves travel time and is economical.

Elluminate helps one to transition from institution or instructor-centered learning to personalized, active learning. It is a tool that helps in meeting “the needs of mobile learners, facilitate formal and informal learning, provide mission-critical professional development, and create a culture of collaboration” (*Elluminate*, 2009). *Elluminate*’s “continuing growth across academic markets represents the willingness of institutions at all levels to invest in enabling technology that is positively impacting education by engaging more people in more ways” (Raju Shanbhag, 2009).

Elluminate has been effectively used with children in the United Kingdom and China in 2008. The children were able to participate in a one-time live Mandarin and English lesson, made available by the use of *Elluminate* and Promethean’s interactive software.

The link-up between Lambeth Academy in the UK and Houhai School in China “demonstrates how interactive software, when used in conjunction with programs such as *Elluminate*, enables schools to communicate collaboratively in real time” (Paul Dean 2008).

Other clients that use *Elluminate* “come from virtual schools, school districts, community colleges, universities, corporations and other organizations, seeking centered learning, on-demand collaboration, start-to-finish session management, content creation and distribution, and enterprise-wide adoption” (Raju Shanbhag, 2009).

4. Blending Technologies for Extension

There is so much available in terms of technology that it becomes a puzzle for Extension to decipher when trying to select ways to teach and learn. Lehman and Berg (2007) offer great insight into the practicality of ‘blended’ technologies for teaching and learning. The concept of blended technologies is very critical to ensuring wide use of Extension education in today’s population.

In Extension education, one technology may not be sufficient to carry out a program. For instance, an online, live program on financial literacy for farmers and consumers may require web conferencing to connect all participants, instant messaging or chat to ask questions to follow up on the comments others make. This online instruction may require access to online calculators for testing the participants’ knowledge. It may also integrate other technology such as instructional modules located at *extension* on a Moodle interface. Of course, this educational session can be turned into a podcast that could be made available to other students via i-tunes, for example.

All these technologies are great tools for today’s Extension educator. The key to the success of using blended technologies is for the educator and the audience to acquire the basic skills for participating on successful online education. It is important to recognize the absence of the physical face-to-face presence in this virtual classroom and try to adhere to what Hanna, Glowacki-Dudka & Conceição-Runlee (2000) call “netiquette” or the internet etiquette. For example, there needs to be clarity and rules about humor that could be misinterpreted, managing sensitive topics that suddenly become very serious due to a mismanagement of the communication process. An Extension educator must serve the role of guardian of this virtual space. We need to remember that Podcasts, online modules, etc., do not replace the professor or educator; they simply work as tools for enhancing the educational experience. Finally, for ICTs to work best, community coalitions can play a role in serving as a support system for educating various audiences. County-based, local Extension personnel can fulfill the role of establishing and supporting coalitions by their presence and expertise available in rural communities.

5. Models

ICT models such as *Really Simple Syndication* (RSS) and *Elluminate Live!*, virtual training centers, and examples of successful Extension and community partnerships working as team to provide training such as the Essential Healthy Homes Practitioners Course will be discussed.

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ANALYSIS OF ICTs IN AGRICULTURAL EXTENSION IN IRELAND

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Keywords: ICTs adoption, online services, mobile telephone.

1. Introduction

There have been very significant increases in levels of engagement with Information and Communication Technology (ICT) in Ireland in recent years. ICTs are considered to be enabling tools for accessing, using and sharing information and knowledge. Accordingly, Government policies focus on promoting the adoption and use of ICT in the home, in education and in the workplace. Extension services are increasingly using ICTs to disseminate information to their clients. This paper analyses the use of ICTs by the government and by public and private extension agencies in Ireland and identifies constraints to their adoption.

2. Adoption of ICTs in Ireland

Analysis of adoption of ICTs by the Irish population is a complex study which includes measuring computer access in households; access to the internet; broadband availability; and mobile phone penetration. Some 67% of Irish households had either a personal computer or a laptop at the end of 2008 (Millward Brown IMS, 2009). However, only 58% of rural households had either a personal computer or a laptop indicating that rural Ireland is lagging behind in computer use (ibid).

Internet use among the Irish population is increasing. At the end of 2007, 54% of the population used the internet on a regular basis (Millward Brown IMS, 2008a), while this increased to 64% by the end of 2008 (Millward Brown IMS, 2009). Internet use among businesses was considerably higher; research by Millward Brown IMS (2008b) indicated that internet access among Small and Medium size Enterprises (companies with less than 100 employees) has remained steady at 88%, while corporate access (i.e. companies with 100 or more employees) was almost universal. Smaller companies (i.e. less than 10 staff) were least likely to have internet access with 82% connected to the internet. However farmers were among the lowest internet users at 34% (Chambers Ireland, 2007).

Broadband subscriptions in Ireland are increasing rapidly. Comreg (2008) reported that by September, 2008, there were 1,125,080 broadband subscriptions in Ireland. This was an increase of 6.7% for this quarter. Comreg (ibid) noted that Ireland ranked 12th highest among the EU 27 countries. Amarach Consulting (2007) found that internet users outside Dublin city had far more problems with the poor service both in terms of availability of broadband and choice of supplier. A national survey conducted by the Irish Farmers' Association (Smith, 2008) calculated that 75% of rural households did not have access to broadband in 2007.

Comreg (2008) reported that at the end of September 2008 there were 5.27 million mobile phone subscriptions in Ireland, representing a penetration rate of 121.5%. Mobile phone ownership was almost universal among people under 50 years but farmers were among the least likely, at 82%, to own a mobile phone (Millward Brown IMS, 2008a). Comreg (2008) reported that the Irish penetration is marginally behind that of the EU average of 122.1%.

The level of computer and internet adoption among Irish farmers has been researched (Wims, 2007). The results were compared with the level of adoption among the general population in Ireland and with farmers in other comparable countries and presented at a previous ESEE meeting and so it is sufficient to refer to the main

findings here. It was found that ICT adoption by Irish farmers compares favourably with the national average and with farmers in continental European countries. However, it is insufficient to merely examine levels of adoption as this can mask data on who is using ICT. In almost one-third of farming households, children and/or spouses were the only family members able to use the PC. Less than two-thirds of the farmers with access to ICT used this for farming purposes. ICT was typically used in more farming households for entertainment than for farm business purposes.

3. Deployment of ICTs by Irish Ministry of Agriculture

The Ministry of Agriculture's policy in relation to the use of ICT is to "... make the maximum use of electronic services, to facilitate easier transmission of information to clients, to minimise the collection of new data by using existing electronic information and to integrate with clients' own systems" (Hanly, 2008). The most significant online services developed include a SPS (Single Payment Scheme) and AIM (Animal Identification and Movement) scheme.

The SPS is a direct subsidy paid to landowners under the Common Agricultural Policy of the EU. The SPS online service for farmers allows them to submit their Single Farm Payment application electronically. They can also check their application status online, view scanned images of all correspondence and view colour maps and aerial photographs of their farmland. This service was launched in 2007 and during that year some 7,500 applications (6% of all applications) were received electronically. This increased to 20,000 applications (16%) in 2008. The Ministry of Agriculture has observed a 25% reduction in errors in online applications compared with paper transactions, illustrating that the online facility simplifies the procedures for farmers (Hanly, 2008).

AIM is an integrated system which traces all movements of farm animals; it is designed to reassure consumers that their food can be traced back to the farm where it was sourced. The AIM (Animal Identification and Movement) online service allows farmers to register animal births online; apply for a Movement Compliance Certificate; view, print and download their herd profiles and details of the movement of animals into and out of their herds. In 2008, 10% of all herds and 16% of all calf births were registered electronically, instead of the traditional paper-based method (Hanly, 2008).

4. Deployment of online services by Teagasc, the Public Extension Service

Teagasc, the Irish public extension service, uses a range of online systems (internet, intranet and extranet sites) for the purpose of disseminating information both within its own organisation and to its clients; the most significant of these include:

- The Teagasc website (www.teagasc.ie) which is open to all on the internet;
- The Teagasc intranet site (Client Information Management System, CIMS); and
- The client.net website, an extranet website, which is available to farmer clients.

The general Teagasc website (www.teagasc.ie) is a promotional tool for the services offered by the organisation; it advertises the advisory and educational services offered and explains the types of research carried out. The CIMS intranet site holds all client information such as farm details and contact details, services availed of, schemes applied for and status of contract with Teagasc. The client.net extranet service offers Teagasc clients up to date advice on topics such as beef husbandry, dairying, buildings and machinery maintenance, farm management, tillage husbandry, etc. Any Teagasc client can avail of this service and there is no additional charge for accessing this service. A major benefit of the extranet service to Teagasc clients is that they can avail of Teagasc's e-Profit monitor, a financial analysis programme that deals with farm finances by giving clients details of the profit their business is generating. For instance, the e-Profit monitor assesses a dairy farm's profitability on

a “cent per litre of milk produced” basis and compares input costs incurred with benchmark figures to enable the farmer to compare his enterprise with other similar farms. Teagasc (2008) reported that 1,200 farmers (of the 45,000 clients of Teagasc) completed an analysis of their physical and financial performance during 2007. More recently, Connolly (2009) reported that by the end of February, 2009, over 800 dairy farmers had used this e-Profit Monitor programme to analyse their 2008 costs and budget for the 2009 season.

5. Deployment of Mobile Telephony in Agricultural Extension

Teagasc has recognised that mobile telephones provide an opportunity to disseminate information rapidly to farmers. Moore (2008) estimated that 90% of Teagasc clients had mobile telephones. He reported that during 2007 Teagasc sent 200,000 SMS messages and that this will increase in the future. The most common type of usage is to remind farmers of group meetings and local farm walks. SMS messages are sent the day before the event and are used to give additional information such as the exact location of the event. Extension workers typically set this up in advance so that the reminder is sent automatically. Once groups have been set up extension workers can easily send urgent messages to the group if there is a last minute change of venue. Teagasc disseminates SMS messages from either mobile telephones or the internet. The cost of sending group SMS messages (c. 5-6 Euro cents per message) is significantly cheaper than post or voice messages.

In addition to disseminating routine messages, Teagasc also use SMS messaging to disseminate “Just-in-Time” or time-sensitive extension information to clients. One application of this is in horticulture. Horticultural extension workers use traps to identify when the second generation of Carrot Root Fly becomes active. This information is immediately disseminated to growers so that spray applications can be based on need (identified by trapping) rather than routine spraying as was previously the norm.

SMS messaging is also increasingly used by Irish agribusinesses. Dairy processors conduct regular tests on samples of milk supplied for processing and the majority of these companies use SMS messaging to inform their clients of the results of tests for fat content, protein content and milk hygiene as soon as these results are available.

6. Deployment of Extranet by Agribusinesses

In this section, a case study of an extranet website is presented. This extranet site, “AgriLink” (www.agrilink.ie) was developed by Glanbia, a cheese and nutrition company. Glanbia has 4,500 farmer milk suppliers and so is one of the larger milk processing companies in Ireland. Glanbia launched AgriLink in 2000 to provide a link with its farmer customers. It was a secure site whose main purpose was to allow farmers have access to all information relevant to their business with Glanbia. This includes milk test results, individual milk collection details and copies of milk statements. A superlevy statement is updated after every collection and help pages are provided with advice on non-conforming test results. Trading account holders can view the current balance on their accounts. Grain suppliers can select by grain type or intake branch to confirm the latest test results, weight, price paid and value of grain supplied. Copies of grain statements are also provided. AgriLink also provides a comprehensive news section. Thus, AgriLink has an important extension element. Registering for access to the AgriLink website is free of charge. This extranet site is not unique in Ireland; almost all of the large dairy cooperatives have established similar websites in recent years.

Research was recently conducted by the author to evaluate AgriLink. The objective of this research was to explore the effectiveness of the AgriLink project and to determine how this could be improved. Data were obtained from the Glanbia website development team and from dairy farmers who supplied milk to Glanbia. Quantitative research took the form of a postal questionnaire to Glanbia milk suppliers; a sample of 165 dairy farmers was identified: 55 frequent users, 55 occasional users and 55 non users of AgriLink. Some 113 completed questionnaires were returned, representing a response rate of 68%.

The typical AgriLink user was male, a full time farmer, young or middle aged (i.e. 35-50 years of age), married with dependent children, and owner of the farm business. He was likely to be a Teagasc client, well educated and with a good level of agricultural education.

Some 94% of all respondents had a home PC; this was expected as all AgriLink users had a home PC. However 76% of respondents who did not use AgriLink also had a home PC. This was higher than the national average of 67%. The level of internet connectivity was 100% among AgriLink users and 65% among non users. The use of broadband among non users was low at 24% whereas over half of the frequent users had broadband. Respondents themselves were able to operate computers in almost all cases where they used AgriLink whereas in non-users' households only 60% of respondents could use a computer. The features of AgriLink most commonly accessed by users included milk supply details and milk test results (by all 100% of users), milk monthly summaries (by 95%), milk statements (by 85%), and milk superlevy statements (by 96%). Users were asked to rate the features on AgriLink. Milk supply details and milk test results were reported to be particularly useful. Milk Statements and Annual Summaries were not as useful. The online business and the General News sections were rated as least useful. The Statement Download facility was only useful to those who had a farm software package to utilize it. While some 60% of respondents did indicate that they had a farm management software package it is clear that not all of them were incorporating AgriLink into it and obtaining the full benefits of it.

For non users, their reasons for not adopting ICT were investigated. While 76% of respondents who did not use AgriLink had access to computers at home, it was considered unusual that they had not engaged with this resource and other factors, other than access to a home PC, were clearly preventing them from realising the benefits of AgriLink. It was found that non users of AgriLink were much less likely to have completed computer training than either frequent users or occasional users. It is clear that this low level of training among non users has adversely influenced the adoption of ICT and the use of AgriLink. When non AgriLink users were asked what would encourage them to use AgriLink, the most common reply was that better computer skills would encourage them (by 48% of respondents). The second most important obstacle was the lack of broadband; some 20% of respondents felt that improved internet access would encourage and enable them to use AgriLink.

7. Conclusions

Considerable strides have been made in ICT initiatives in Ireland in recent years. The Ministry of Agriculture has been among the most innovative supporters of the Government's policy by promoting ICTs. However, the online services developed by the Ministry of Agriculture are mainly concerned with the administration of schemes and regulations and not with the development of extension per se. The public extension system has also been innovative in using ICTs to disseminate information and the use of mobile telephony has been particularly effective. Ireland also enjoys agricultural extension type services provided by the private sector such as agribusinesses. These too have been innovative in the use of ICTs to facilitate dissemination of information to their clients. Thus, it is concluded that the extension supply side has been pioneering in developing and promoting ICTs.

However, the demand side has not met the challenge nearly as well as the supply side in terms of usage of these innovative ICTs. Older farmers are less likely to use ICTs and have less understanding of the benefits of ICT. This is partly due to their lower education levels. Computer training is an issue for farmers in the adoption of ICT and research findings demonstrate that lack of computer skills is an obstacle to ICT use. Less than one third of non users of AgriLink, for instance, had completed any formal computer training compared with 57% of users. This lack of training will continue to be a barrier to increased uptake of ICT.

The lack of infrastructure necessary to use ICT to its full potential also continues to be a barrier. There is a major imbalance in the provision of broadband between urban and rural areas. The lack of availability of broadband to

rural areas is limiting the impact of ICT among Irish farmers. The commitment given by Government to extend the benefits of the Information Society to all parts of the country must be delivered. Broadband is now accepted as vital to rural sustainable development and without it farmers cannot make full use of ICT.

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FARMER RESETTLEMENT AND NGOS INTERVENTION IN MOZAMBIQUE: THE CASE OF MORRUMBALA

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Keywords: Resettlement, NGOs, extension.

1. The context and the problem

Mozambique is a vast country in the southern part of the African continent, with considerable geo-political importance. It is surrounded by six Anglophone countries, being South Africa one of the key ones. The population tends to be concentrated along the coast and the fertile river valleys. It has a population of about 19 million people, mostly young. Most active people work in agriculture (80%). Mozambique was assaulted by a bitter war which ended in 1992 and affected millions of farmers who felt obliged to emigrate in a desperate search for refuge. It was of phenomenon of national dimension, which affected deeply the social structure and the life of very many families.

After the peace agreement in October 1992, signed by both sides in the conflict, namely FRELIMO and RENAMO, it became urgently necessary to support the return of these farmers to their respective areas of origin. Resettling the farmers was a sad and complex process, which involved diverse governmental and nongovernmental organisations, both national and international. Of the eleven provinces, Zambezia was one of the most affected; here, the process of resettlement of farmers was supported by, among others, two international NGOs; one, Save the Children, was English, the other, World Vision, was North-American. The present study was exploratory and attempted to understand the process of resettlement, starting from the presuppositions of the intervention of the two NGOs, and focusing especially upon the implications for “animation” and rural extension. The major objectives were: to understand and quantify the resettlement phenomenon; (2) to identify and analyse the resettlement policies; (3) to identify the institutions supporting the resettlement; (4) to analyse their interventions in the district of Murrumbala. This poster will outline the major aspects.

2. Study background

The conceptual framework chapter of the study presents an overview of the agriculture and rural development policies implemented in Mozambique in the post-colonial period, with an emphasis in the democratic period after 1992. The creation of the National Extension Services in 1987, under the Ministry of Agriculture, is also presented. These services developed their initial work to train extension agents in areas such as the diffusion and adoption of new technologies, the T&V System, planning and needs assessment at field level. A number of international institutions, including the World Bank, FAO, PNUD, UNICEF, DANIDA and GTZ supported project implementation in different provinces. The initial structure of extension programs was based on districts and in each one an extension unit or network was created. In the late 80's, given the socio-economic and political situation, the selection of districts was based upon the relative level of military safety. The T&V System was adopted in many provinces, including the studied one of Zambezia and the district of Murrumbala, but several modifications were introduced, given the top-down nature of the system, the heavy structure required, the rigidity and the high costs involved.

The resettlement of farmers posed considerable challenges. The number of people involved was not clearly identified, but several sources mentioned something like 4 to 6 millions (Cardoso, 1985; ACNUR, 1998; Ante-Projecto da Lei da Terra, 1996). Support to poverty alleviation was given by the Catholic Church. The Land Tenure Law was seen as one of the major factors to support the resettlement (Negrao, 1996). In the Murrumbala district several governmental and NGOs were involved in the support efforts, providing training and technical assistance, credit schemes, seed money for small investments, distribution of production in commercialisation centers in the district capital, and provision of equipments and storage areas. We studied in particular the cases of two international NGOs: Save the Children and World Vision.

3. Methodology

This was an exploratory study and a combination of quantitative and qualitative techniques was used. The district of Murrumbala was selected, once a large flow of external refugees was identified, mainly coming from Malawi. Besides, the two mentioned NGOs were active providing different kinds of support services and aid.

The research used exploratory informal interviews with local authorities, semi-structured interviews with institutional and NGOs leaders, as well extension agents (district and World Vision), rural extension coordinators and others. Besides, a total of 30 resettled farmers were interviewed using a questionnaire. The total number of contacted people was 53. Secondary data was also consulted.

4. Major conclusions

The study leads to the conclusions that existing data relating to the process of rural population resettlement after the war was dispersed and only approximate. The resettles returned to Mozambique given the strong ties to the country and their land. They were convinced that they could better survive in their own communities. Their major priority was to obtain small equipments essential to perform their farming activities, but this was often neglected by state and NGOs interventions.

Policies and other forms of government support were much below the felt needs. However, the new Land Tenure Law was considered positive, as it recognized some of the traditional local customs. The privatization of Banks created some difficulties to the resettles, making access to credit more difficult. However, the privatization of transportation facilitated the circulation of people and goods, and the reactivation of informal commerce and other rural activities. The investment in public schools, hospitals, other infrastructures and training, was seen as beneficial. However, the problem of absolute poverty remained as the critical one to be tackled.

The actions of NGOs in the process of resettlement were, above all, essentially offering assistance. These organizations, in general, had a positive role in the country and looked for solutions to the multiple poverty and rural development problems. Save the Children and World Vision were particularly active in the resettlement process, working with different emergency and reconstruction programs, in areas like agriculture, education, health, infrastructure construction and de-mining. In fact, both were able to give a human face to the resettlement process, in a moment in which the population was confronted with multiple needs. However, their intervention was often characterized by an assistentialism perspective. On the other side, their links with the district government were relatively weak.

In terms of rural extension, the whole process could be seen as one directed from the top-down, oriented more to communication than to education and empowerment. Between the extension agents and the farmers there were great differences in terms of world view, fact that made communication and exchanges more difficult. The traditional message dissemination was not prepared with community needs assessment, and the proposals often produce limited results. Monitoring and evaluation were mostly geared by the interests of the extension organization, focusing on agent performance indicators, and not so much on the impacts at the field level.

Besides, there was a divide between the District Extension Services and the Provincial structure. On the other side, the public services preferred to equip themselves with medium or higher education people, while the NGOs hired technicians with basic training, perhaps due to financial concerns.

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EFFECTIVE FACTORS ON PEOPLE PARTICIPATION IN PROTECTING, REVITALIZING, DEVELOPING AND USING RENEWABLE NATURAL RESOURCES IN ILAM PROVINCE, IRAN

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Keywords: People participation, natural resources extension, public organization.

1. Introduction

Natural resources of every society are the wealth of that society which not only belongs to the present generation, but also a heritage belongs to posterity. But we must admit that the role of natural resources have never been so vital and useful for human beings at no moment in history, and their existence have never been threatened by human in such a broad scale (Majnounian, 1999). These warns will be more serious when 1.5 million hectares of agricultural, forestry lands and pastures turn to dessert in our country annually. Whereas, around 200 tones of soil go to seas, lakes and to the dams in every moment. In fact, around 20 tones of soil is constantly washed by erosion in Iran every year, and this means losing of 76 Kgs Azotes, 24 Kgs phosphorus, 8 Kgs potash in each hectares. If we add the value of food in soil, we will lose about 7.6 million dollars of micro-nutritious available in soil yearly. Ilam province is one of the situated provinces in the west of Iran, located on the path of vegetative zone of Zagros. This province has entirely 11% of the Zagros forests, 4% forests of Iran, 4.97of whole vegetative pastures of Zagros, and 8% of whole pastures of Iran. On the other hand, 87.38% of this province is the base of natural resources (the forests and pastures Organization of Iran, 2007). Besides, with considering the current rate of natural resources in Iran and it's provinces and the problem concerned to it which are directed to the present and future generation, there is absolutely no way to compare the rate of destruction with the measures done to protect, revival, using of natural resources. To overcome such problems, the role of government as planner and protector of the projects related to natural resources is obvious and important. But this is completely evident that the accomplishment of these projects needs people participation.

The main issue is that the people of this province do not associate in protecting, revival, development and using projects. Their attitude toward natural resources is more based on wrong using and use of these resources. Furthermore, it seems that the attitude of rural and tribal society toward the projects presented by government is not positive and these projects are not granted for cultural and historical aspects. In the way that in projects like the balance of livestock and pastures, guide project, the project of preserving of natural resources, the Green Movement, the participation of people, in spite of the spending huge costs by government, had the minimum rate among the other provinces which are situated in vegetative zone of Zagros (the forests and pastures Organization of Iran, 2007). We can look for the consequences of having not participation of people dealing with the processes like protecting, revival, development, and using of natural resources in increasing the rate of destruction of these resources which has the scale of 1.3 times more than other provinces in Zagros zone, and also in increasing of pasturage capacity on the scale 5.3times more than pastures and increasing of exploiters emigration to cities (the forests and pastures Organization of Iran, 2007). The past experience show that the preventing natural resources from destruction, and using of stable management to these resources, because of the broadness of resources and limitation of governmental resources is beyond the capacity of government sector.

2. Literature Review

Paying attention to natural resources from different perspectives attracts many scientists researchers. Every researcher studied the effective factors on natural resources from different points Malek Mohammadi (1999), Razaki (2000), Kashani (2003), Samari (2004), Shariaati (2004) acknowledged the role of Extension-education (emphasizing on applied education) and it's effect on protecting, revival, development, and using of natural resources which are renewable. Motavali (2004), Osman poor (2007) believe that the personal factors such as (level of education, course of study, work place, the situation of work place, matrimonial status, the resources of earning income, the interest of the people involved, the number of family members, the kind of job, age,...) have influenced the processes of protecting, revival, development, and using of renewable natural resources Khaliqi, Kasemi (2004), Hosseini (2006) studied this form the economical point of view and they mentioned the influential factors such as income, the amount of irrigated and non-irrigated lands, the transportations, the number of livestock, granting banking facilities, Razaki (2000), fisher (1993), Kashani (2003), Poffen, Berger (1993), Malek Mohammadi (1995), Mir Bod (2000) acknowledged the effect of institutions and popular organizations and non-governmental organization in processes of protecting, revival, development, and using of renewable natural resources. Some other researchers believe that the government has effects (like obviation of limitations of people ownership, decentralization and granting affairs, enforcing people-government relationship, executing obligations on behalf of government, believing people participation, the professional capabilities of the people in charge and specialists, informing people, finding people's problems and proper policy making in protecting, revival, development, and using of renewable natural resources. Samari (2004), Mousavi (2001), Shaditalab (2003), Shariaati (2004), Motevali (2004), Hosseini (2006), Popzan (2006), Barnet (1991), Koder (1995), construed the social factors (like: social class, the kind of job, education, job experience, the kind of attitude towards the project, empowering the local associations, taking into account the indigenous knowledge, considering the right of ownership, making jobs, the being and presence of local leaders) as effective factors on processes of protecting, revival, development, and using of renewable natural resources. Popzan (2006), Azkia (2002), Hosseini (2006), Malek Mohamad (1994) found psychological factors as influential factor in processes of protecting, revival, development, and using of renewable natural resources. Some other researchers (Popzan 2006, Redely 1973) alluded to the physical and structural factors (strength, physical health, physical capability,) cornering the processes of protecting, revival, development, and using of renewable natural resources natural. Malek Mohammad (2002), Shaaeri (1998), Shariaati (2004), Samari (2004), FAO (2000) considered the professional training of Extension agents of natural resources and people and user's participating in structural classes as effective factors in protecting, revival, development, and using of renewable natural resources.

In the research which was done between the variables of educational level, the amount of information which people have about the importance and advantages of forests, participation in instructive- extension classes, using of extension magazines and periodicals, using of educational films, using of lecture meetings, using of educational programs of radio, using of TV, the number of contacts with extension agents and contacts with honorary extension agents, supplying fuel by government and the variable related to rate of people participation in protecting forests, positive and meaningful relationship has not been reported. In this survey between the age variables, using of the programs of literacy crusade, the number of visits, the state of people awareness about the rules regarding protecting and supporting of forests and the variable of people associations, a meaningful relationship have not been reported. In this survey, the independent variable of supplying of burnable materials by government, being cognizant about the importance of contacts with honorary forest protectors and participation in educative-extension classes have the utmost effect on the dependent variable of people participation, respectively. In the survey which Moteveli (2004) have done, there have not been opposite and meaningful relationship between the variables of the corporation of government organizations, supplying burnable materials foe rural people by government and the problems which appear on the way of protecting natural resources. Kaliqi and Kasemi (2005) have studied the variable like age, literacy, transportation facilities, family dimension (its size), livestock unit, the hectares of irrigated and non-irrigated lands, and people

participation. The general purpose of this research is the regression analysis of the effective factors on people association in processes of protecting, revival, development, and using of renewable natural resources from Export's view of Ilam Province. The special purposes of this study are:

1. The study of personal characteristics of the experts.
2. The study of relationship between the research variables and people participation in processes of protecting, revival, development, and using of renewable natural resources natural.
3. Determination of the expressive factors of the variable of people participation from Export's point of view.

3. Materials and Methods

This is an applied research. Because it is to apply The theories, rules and principle which are based on Theoretical assumption to solve the problems .It is casual – relative Research .It is impossible to control variables and Therefore It is a quasi- experimental research .The questionnaire have used to collect data .To be sure That questionnaire is valid .The advice and supervisor professor of Ilam azad university and Tehran azad university are used. To test the reliability of questionnaire, Thirty questionnaire had been answered and coronbach alpha calculated ($\alpha=88\%$) and this number was a suitable (good) final factors in these research. The sample size was calculated using Cochran formula and It included 317 users. stratified and cluster sampling and was used for users respectively. The spss software was used to analyze the data. To test the hypothesis, correlation, multiple regression were employed.

4. Discussion and Findings

The research finding showed that the most frequency of experts were in the age level 36-45 years old, 7.5% of them were above the age of 25 years old.84.81% (45 persons) of them were married and 9.8% of experts were single.

Correlation studies: In order to study the relationship of research variables, we use the Spearman correlation coefficient Table 1 shows the results of this part:

Table 1: Relationship between research variables

P	r	variable	
002.	468.**	Political factors	1
000.	619.**	Social factors	2
041.	320.*	Economic factors	3
011.	404.*	Psychological factors	4
005.	429.**	The capacity of natural resource extension agents	5
065.	291.	Program plan content of natural resource extension	6
009.	397.**	Program planning factors	7

**It is meaningful on the scale of 0.05 * it is meaningful on the scale of 0.10

The multi-variable regression analysis

At this stage, we use the multi-variable regression by means of backward method in order to evaluate the cumulative effect of independent variables on dependent variables of people participation in protecting, revival, development and using of natural resources. In this method, all independent variables come in to analysis and the effects of all independent variables on dependent variables will be tested. But, the weaker variables, one after another will gradually go out of this equations, and eventually these phases will be continued till the time when the error of a meaningful test gets 10%. Table 2 shows the finding of the regression analysis

Table 2: The findings of multi-variables

Independent variables	B	SEB	Beta	T	Sig
Political factors (x1)	.192-	.547	.065-	352.-	.728
Socio-cultural factors (x2)	1.97	.542	.749	3.640	.001
Economic factors(x3)	.860-	.455	.315-	1.890-	.069
Psychological factors (x4)	.092	.311	.066	.429	.664
The capacity of natural resource extension agents (x5)	1.57	1.15	.349	1.266	.182
Program plan content of natural resource extension (x6)	.268	.978	.047	.374	.786
Program planning factors (x7)	.342	1.41	.037	.341	.811
	36.49	26.53	-	1.29	.175

Multiple R = .57 R square =.574 Adjust R square =.536 Standard Error=18.54

The calculated determination factor ($R^2=0.57$) shows that the independent available variables have meaning explain 57% of the changes of dependent variable (participation in processes of protecting, revival, development and using of renewable natural resources). This math equation shows the relation between the dependent and independent variables as follows:

$$y = 36.49 + 1.97x_2$$

In fact, the result of analyzing the variance for regression equation is meaningful ($P=.000$ $f=5.57$).

5. Conclusions

This survey was done with the purpose of regression analysis of effective factors on people association in protecting, revival, development and using of renewable natural resources of Ilam from the view point of experts. This studies which were done by correlation coefficient showed that there is a relationship between the variables of the professional capabilities of executive agents, Political factors, Program planning factors, Psychological factors, Socio-cultural factors, Economic factors with the participation in protecting, revival, development and using of natural resources. The result of regression analysis shows that only social-cultural factor from 7 factors of social, political, cultural, economical, psychological agent abilities natural resources extension content, and extension planning had an effect on people participation.

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THE EFFECTIVE PROCESS IN PRODUCING AND TRANSFERRING APPROPRIATE TECHNOLOGY FOR EXPLOITATION OF NATURAL RESOURCES

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Keywords: Technology generation and diffusion, natural resources.

1. Introduction

Serious destruction of natural resources during the recent years has become quite problematic. Thus, it must be considered in development planning. Generally speaking, the three factors of population growth, the method of utilization of resources and the destructive effects of applying the technology result in destruction of natural resources. Thus, in case if we seek a sustainable society and a stable environment, we should try to make good of its destructive factors (Brich, 1993).

Today the innovation of practical technologies in the different fields such as the discussions associated with agriculture and natural resources has significantly been extended. However, and though the increasing need of the natural resources exploiters to the development and application of modern technologies, the current experiences indicate that the technologies presented to such societies may have not acceptable practicability in general, and have a high rate of non-acceptance. On the other hand, due to the fact that each technology accepted shall be appropriated with the current principles and codes and also be usable with respect to the potential and effective facilities and capabilities of the region, thus it has been tried in this article to use the viewpoints of the country's natural resources thinkers and experts to inspect the effective methods in production, transferring and application of a proper technology for the natural resources exploiters.

Appropriation of the technology may be inspected in different aspects as an important factor which plays a major role in transferring and acceptance of the technology by the natural resources exploiters. Regarding the technology appropriation the level of technology conformity to the economical, social status and the exploiters conditions shall be considered.

Transferring of technology may seem a simple communicative process, but the deep and careful analysis thereof indicates that the technology transfer is a predictable learning process, in which first of all the technology understanding shall be made and then the way of utilization of technology to solve a problem shall be commented and explained and finally the technology application for solving such problem will be performed.

2. Research purposes

The general purpose of this research is the analysis of effective methods in production, transferring and application of proper technology to the natural resources exploiters, for the higher achievement of which the following special purposes have been considered.

1. inspection the importance and necessity of various factors in production, transferring and application of proper technology to the natural resources exploiters
2. prioritizing the experts ideas regarding the methods of management of production, transferring and application of technology in natural resources

3. inspection and prioritizing of the features of making the technology suitable
4. inspection and prioritizing of the effective factors in production and transferring of proper technology to the natural resources exploiters

3. Materials and methods

The current research is practical and descriptive- regressive with regard to the matter of purpose and method, respectively. The group under study in this research includes all 56 experts of the State Organization of Forests, Pastures, and Aquiferous and in order to perform sampling among such statistical society, the simple random method has been used.

In order to measure the validity of the prepared questionnaires, using a pilot test, some 15 copies were completed and the completed questionnaires were measured using the Spsswin software and the Kornbach alpha method, the results of Kornbach alpha coefficient for such questionnaire became as 88%, which shows a good validity for the questions. In this research and after collection and classification of the data, the descriptive and inference statistics methods have been used. First of all the abundance distribution table was prepared and then some cases such as abundance, abundance percentage, accumulative abundance, average, median, mode, deviation were calculated and then as the inference statistics part the factor- based analysis modern technique was used.

4. Results

a. descriptive results conclusion

The ideas of the people under study in the field of the characteristics of making the technology proper for the natural resources exploiters indicate that the respectively: participation of the exploiters, promoters and researchers in evaluation of the produced technology, establishment of research group under due presence of exploiters' agents, subjective experts and promoters, researcher and exploiter, analyzing the requirements using the proper techniques, determination the required criteria in order to choose the proper place, preparation the program of production the technology and organization of the required information for the achievement operations and determination the proper technological criteria of sustainable development have a certain importance and necessity with respect to the production and transferring of proper technology to the natural resources exploiters.

Regarding the methods of management of technology production in natural resources, the people under study believe that in technology production, the local knowledge shall be merged with modern knowledge and the technology shall be produced under due participation of the researchers, promoters and exploiters of the natural resources field. And such process shall be fulfilled under due responsibility of the researcher and presence and participation of the promoter and exploiter.

Regarding the methods of management of the technology transfer at natural resources, the people under study stated that following up the technology acceptance, technology testing and making the technology compatible are of the main steps of technology transfer. The promoters are facilitating technology transfer to the natural resources exploiters and it is better that the technology transfer process to be made under the responsibility of the promoter and participation of the researcher and exploiter.

Regarding the methods of management of the technology transfer at natural resources, the people under study stated that respectively, encouraging, measuring, interest, awareness and acceptance are of the steps of application of technology and it is better that the research and promotion principles to be administered by a unique management. The results of the people under study viewpoints regarding the common methods of

technology production and transfer management at the natural resources show that education, promotion and research are considered as the effective organizational factors in technology production and transfer and it is better that at the technology production and transfer the mutual learning and effective and good relation to be emphasized.

b. factor- based analysis of the factors effective on production, transferring and application of technology

At this part and in order to limit the variables effective in production, transferring and application of proper technology to the natural resources exploiters, the factor-based analysis has been used, the results of which are given as followed:

The current research has used the exploring analysis with the data briefing approach for factor- based analysis. In order to do so, 36 variables associated with the methods effective in production, transferring and application of proper technology to the natural resources exploiters have been inspected. In order to determine the suitability of the respective data, the k.m.o. method and Bartlett test have been used. According the k.m.o. method, which is also known as the M.S.A test, in amounts evaluation, in case if the values obtained are more than 0.7 then the data suitability for the factor- based analysis is confirmed. Performing the factor- based analysis gave the k.m.o. value as 0.775 and the Bartlett test results for the data regression matrix is equal to 2287.74 which is meaningful with respect to a very good level ($p= 0.000$) and shows that the data is proper for factor- based analysis. In order to determine the number of the factors the Kaiser method and variance percentage have been used. In Kaiser basis, the factors whose Eigenvalues (special values) are bigger than (1) are chosen. Doing so, some 8 factors were obtained with respect to the following table, which generally specify 82.40% of the total variance. It should also be mentioned that the other values which were less than 1 have not been mentioned in table 1.

Table 1: Eigenvalue (special value) s and factors variance percentages

Factor	Eigenvalue (special value)	Variance percentage	Accumulative percentage
1	13.17	36.59	36.59
2	4.05	11.27	47.86
3	3.41	9.49	57.36
4	3.20	8.90	66.26
5	2.16	6.01	72.27
6	1.34	3.72	76.00
7	1.29	3.60	79.60
8	1.00	2.80	82.40
...	...	...	...

In order to simplify the factors structures and making it possible to comment on them, and also naming the factors thereof, the factor- based rotation with the Verimax method was used, which identified the final results of 8 factors and the total factors take 82.40% of the variables total variance.

The first factor has been named as "technology fundamental factors", which includes the variables of: fundamental and supportive facilities, economical, cultural and political conditions. The Eigenvalue (special value) of this factor is 13.17, and generally such factor has 36.59% of the variables total variance.

The second factor has been named as "technology factors", which includes the variables of: technology production test, following up the technology acceptance, technology application test and supporting the exploiters. The Eigenvalue (special value) of this factor is 4.05, and generally such factor has 11.27% of the variables total variance.

The third factor has been named as "participation factors", which includes the variables of: technology production by researchers, promoters and exploiters participation in the fields of natural resources, promoters and exploiters in technology production and transfer, fulfillment of the technology production and transfer process under the responsibility of the promoter and participation of researcher and exploiter. The Eigenvalue (special value) of this factor is 3.42, and generally such factor has 9.49% of the variables total variance.

The fourth factor has been named as "technology acceptance associated factors", which includes the variables of: awareness, interest, encourage, human factors (research and promotion). The Eigenvalue (special value) of this factor is 3.20, and generally such factor has 8.90% of the variables total variance.

The fifth factor has been named as "managerial factors", which includes the variables of: merging local with modern knowledge in technology production, discipline- free nature of the researches for technology production and planning from the bottom to the top in technology production process. The Eigenvalue (special value) of this factor is 2.16, and generally such factor has 6.01% of the variables total variance.

The sixth factor has been named as "communicative factors", which includes the variables of: emphasize on making effective and good communication in the process of technology production ,transfer and acceptance of technology application. The Eigenvalue (special value) of this factor is 1.34, and generally such factor has 3.72% of the variables total variance.

The seventh factor has been named as "training factors", which includes the variables of: emphasize mutual information flow among the three parts at the process of technology production and transfer and human resources training. The Eigenvalue (special value) of this factor is 1.29, and generally such factor has 3.60% of the variables total variance.

The eighth factor has been named as "requirements measurement factors", which includes the variables of: requirement measurement for technology production and prioritizing the requirement measurement process by the exploiters, promoters and researchers. The Eigenvalue (special value) of this factor is 1.01, and generally such factor has 2.80% of the variables total variance.

Generally speaking, the results of the factor- based analysis of the factors effective in proper technology production and transfer to the natural resources exploiters show that respectively, the technology fundamental and technology and participation factors, associated with technology acceptance, managerial and training factors ,requirements measurement process are those factors which have the biggest part in clarification of the methods effective in proper technology production and transfer to the natural resources exploiters.

5. Conclusions and proposals

The results of the factors effective in proper technology production and transfer to the natural resources exploiters show that 36 variables associated with clarification of the methods effective in proper technology production and transfer to the natural resources exploiters were decreased to 8 variables. In fact, although there are 36 variables, but such variables reflect or depend on 8 more- general factors. Decrease in the number of factors has two benefits at least, first is that such decrease make use realize the grouping existed among the factors effective in proper technology production and transfer to the natural resources exploiters and second is that such decrease help us in approval or refusal of general theories existed in this regard in the society under study.

Due to the results obtained in the factor- based analysis of the factors effective in proper technology production and transfer to the natural resources exploiters, it is recommended that each of the following factors to be specially considered by the planners and executives.

1. Due consideration of the participation factors (including technology production by researchers, promoters and exploiters participation in the fields of natural resources, technology production by

participation of researchers, promoters and exploiters in research stations, making common decisions by exploiters).

2. Due consideration of the managerial factors (including management of research and promotion organizations, planning from bottom to the top at technology production process, merging local with modern knowledge in technology production).
3. Emphasize on training factors regarding technology (including training human resources, emphasize on mutual learning, mutual flow of information among the three parts of research, promotion and implementation in the technology production and transferring process).
4. Emphasize on requirements measurement process (including requirements measurement for production of technology and prioritizing the requirements by the exploiter, promoter and researcher).

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REVIEW OF EDUCATIONAL NEEDS OF LIVESTOCK OWNERS IN ASHTIAN AREA: CASES STUDY IN ASHTIAN AREA

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Keywords: Assess, educational needs, livestock owners.

Abstract

The purpose of present research is to study the effectiveness of non formal professional courses for battening on quality situation of traps in Ashtian area.

This study is a kind of functional research and it was used with descriptive and correlative ways. In this research, for sampling of educational livestock, use of statistic way and for non educational livestock use of simple relative random sample. In this research the whole of cases that study, was 120 people of educated livestock and 240 of non educated livestock. The ways for perform acing is in developed to collect the data with using of questionnaire.

The results of research were shown that there are many different between two groups .These diversity consist of scientific management quality in battening, self confidence in battening job. Increase quantity to produce mate, authority for relating with others groups, decrease washout in job, disinfectant, regard sanitary principle for keeping animals, obtain fit food for animals, knowing scientific ways for battling on ailments, authority for decreasing expenses, made stimulus for continuing this activities and increase income.

INFORMATION ABOUT RDP 2007-2013 IN UMBRIA – ITALY

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Keywords: Rural development policy, communication, Umbria.

1. Introduction

730 million of Euro (324 from the European Agricultural Fund for Rural Development and the balance from other public institutions) will be made available through the Rural Development Plan 2007-2013 in Umbria, a small Italian region, mostly hilly and mountainous, located at the centre of the Country . In Umbria operate about 57.000 farms, according to the 2000 Agricultural Census, but only 32% are market oriented and registered at the local Chambers of Commerce and Agriculture, with a VAT number. The balance is represented by small units, generally run by part time operators, retirees, etc, who mainly produce for home consumption. According to the Census, most Umbrian Farmers have a low formal educational level. Out of the 730 million Euro mentioned above, about 340 will be used as no refundable grants for farm investments of various categories , such as entry allocation for young farmers , irrigation systems, processing plants, etc. (EC 2006, EC 2007). It can be estimated that such amount will require 28 million Euro of private counter funds, for a total final investment of about 1,000 million Euro. To access such grants, individual farmers as well as groups of farmers have to elaborate technical and financial projects and to enter into a competitive procedure, which will select the best projects, according to different socio-economic and environmental criteria. Project elaboration, submission and follow up are usually performed by free lance private advisors, and by advisors operating within the farmers' association. In both cases, farmers have to pay for such support. Full and detailed information about the different measures, the procedures, the requirements, the obligations, etc. are consequently necessary to mobilize the farmers and the advisors.

2. Materials and methods

Information and data about the information campaign organized by the Regional Government and by other stakeholders have been collected through meetings with the officers in charge of such activities and with other involved personnel (Creswell and Maietta 2002, King 2004), during the months March – May 2009. At present, it has been possible to delineate the general communication framework and the activities already implemented, while a direct survey, aimed at farmers, about the impact of these activities on knowledge and actions, will take place in 2010.

3. The Agencies

The Region: Since 1972, with a decree of the Republic President, the political and administrative functions in agriculture have been devoluted by the State to 20 Regional Governments. The Department for Agriculture and Forestry, in each Region, is responsible for agriculture and the agro-industrial sector. According with the EC Regulation 1698/2005, a Plan of Communication has been draw up, with a total budget of 3 million euro, to be spent during the Program period 2007/2013 (Table 1). Most of this money will be spent directly by the Department, while the balance will be allocated to other stakeholders, listed here below, to exploit their multiplying effects.

Coldiretti: The Coldiretti is a large organization, strongly established all over Italy, with 18 Regional Federations, 98 provincial offices, 765 local offices and 9,812 minor sections. This structure makes Coldiretti the most important organization in Italy (almost 52% of the farms registered at the Chambers of Commerce are Coldiretti members) and one of the first in Europe. It has its main office in Perugia, two Provincial offices in Perugia and in Terni, 22 local offices scattered in the countryside. Coldiretti provides several services to its associates: book keeping, legal advice, general information and specialized advice, VAT declaration and welfare procedures, etc.

Historically, this Union was/is very close to the Catholic Church and to centrist parties,

Table 1 - Financial resources (000€)

Type of activity	Financial resource	%
Information activities	1.350	45
Publicity activities	1.050	35
Support Activities	600	20
Total	3.000	100

CIA – Confederazione Italiana Agricoltori, is the second largest agricultural union, with a category of producers very similar to Coldiretti. Until a few years ago, it was considered a “leftist” organization, but its political orientation has faded. In Umbria, this union has a structure almost identical to Coldiretti: the headquarter in Perugia, two provincial offices and 22 local offices

Confagricoltura: The largest farmers are normally members of this union, which politically was /is considered right sided. The associated farms, although not numerous, represent 38.5% of the national agriculture area and 45% of the national agricultural output. Likewise for the previous associations, also Confagricoltura is articulated in 18 regional federation, 95 provincial fora and hundreds of local offices. In Umbria, it has regional headquarters in Perugia, two provincial offices, and very few local offices.

Ordine degli agronomi (Association of Agronomists): This is a formal association, under the control of Ministry of Justice, of the university graduates in agricultural sciences who want to act as technical advisors. An admission test verifies the technical knowledge and skills of applicants. The membership allows agronomists to receive several services supporting their activities towards farmers and other entities. In Umbria, this association has 707 members (612 in the Perugia Province and 95 in Terni). Many associates work for public entities or for the unions listed before, while several ones are independent free lance, often grouped with architects, engineers, or economists, to provide a full set of services to their clients. Some of these centres are formal Centri di Assistenza Agricola “Centers for Agricultural Support”, recognized and partially financed by the EU through the RDP itself. This association manages the individual registration to SIAR, a computerized system that to access all measures promoted by RDP.

4. Methods and media

The Umbria Region: according to the EU Regulation no. 1698/2005 , Article no. 76 about “information and advertising”, and in coherence with the chapter 13 of the Rural Development Program for Umbria, the Administration has elaborated a specific Plan of Communication (PoC), with several objectives (Table 2). The information action is realized and will be also expanded in the future through web pages, newsletters, press conferences, press releases to media, etc. billboards, posters and an institutional logo to be used whenever and wherever possible. The most official medium is the “Official bulletin of the Umbrian Region”, where the entire text of the RDP has been published. In this bulletin there are also published the beneficiaries of the RDP grants.

Another initiative is realized through the magazine “Umbria Agriculture”, printed in 15,000 copies and distributed to farmers, unions, cooperatives, free lance advisors, etc.

In the web site of the Regional Government there are pages for the RDP 2007-2013. These pages are addressed to the different groups mentioned by the PoC and for the objectives of Table 2. There are also links with the web sites of the institutional partners. The activities have started in 2008, with four seminars in different locations and a final Congress in Terni. Participants were the farmers interested in the RDP and technicians from all unions and free lance advisors. In 2008, the Department of Agriculture has also started a newsletter service, to inform all stakeholders (farmers, advisors etc.) about available funds. News about the RDP have been released to local radios and TV stations, which have frequently covered subjects related to rural development.

Table 2 – Hierarchic structure of the objectives

General objectives	Specific objectives
Information of the potential beneficiaries, of the farmers' unions, of the socio-economic actors, of the institutions promoting equal opportunities, of the environmental organizations and other NGOs, about the opportunities promoted by the RDP and about the terms to access the funds.	Information about the available funds, the criteria of selection and about the administrative procedures.
	Starting up of a suitable and accurate stream of information, also through other actors and farmers' unions, enhancing the dynamic role of the local actors.
	Promotion of efficient levels of partnership in the area through the different private and public agencies, in observance of the collective and integrated approach of the RDP
	Awareness of all the subjects involved in the management of the RDP, about the importance of the communication and of an efficient stream of information
Information of the beneficiaries	Inform the beneficiaries about the engagement, obligations and execution of the procedures depending on the European contribution, and also about the authority managing the realization of different measures.
Information of the public opinion about the role of European institutions, with reference to the rural development policy.	Promotion of a rapid flow of information
	Transparency in the institutional actions addressed to the local agencies, through a proper information about the co-financed projects
	Systematic information about the activities of the Control Committee of the RDP
	Develop a sense of membership to Europe and explain the synergic relationships between European Community and Italian State.

Coldiretti considers the information about the RDP as one of its most important actions for supporting the farmers. The communication to the local offices takes place through bulletins about the RDP and the following adjustments that can interest its field level staff. About this subject Coldiretti has organized periodical meetings

to inform its technical staff. These meetings are usually organized for groups of local offices located in ecologically similar areas. Other meetings have been organized for the farmers, about the possibilities and contents of the RDP measures.

The Coldiretti has also organized special events addressed to specific potential beneficiaries: for example a meeting for women about the measure promoting women entrepreneurship; or a conference for new young farmers, who could be recipients of European and National funds. Coldiretti has also a nonstop connection with local and national media about events, studies or other aspects interesting for the general public. In the web-site of the organization, all the information described before are available for consultation. There is also a page where it is possible to control all calls for RDP grants and the state of the art. Every associated farmer receives at least ten time per year an internal journal called “Campagne Umbre”, with relevant news and agenda of future meetings and deadlines.

CIA has provided information about RDP. The basic instrument has been a leaflet sent to local offices. It has organized meetings and social initiatives addressed to local officers and other events for farmers. From a methodological point of view, CIA prefers to improve the relationship between the farmer and the field level advisor. Consequently, large part of the information is transferred at an individual level, to better combine the information with the specific necessity of the farmer. Last year CIA organized a meeting to directly link farmers and officers of the Umbria Region. CIA has a journal called “Nuova agricoltura Umbria ” published every two months and sent to all the associated farmers and to other addressees.

Confagricoltura considers the communication and information as a multi-level process. Meetings and seminars for its staff have covered the technical aspects and procedures and bureaucracy linked to RDP. In a second moment, the flow of information passes to the farm level, through meetings about general aspects of RDP measures connected to the local contest where group of farms are involved. The most detailed and tailored advice is left to the consultant supporting the individual farmer. Confagricoltura prints also a journal (5.000 copies, one for every associated) as basic way of communication to the farms.

Ordine degli agronomi has an agreement with Umbrian region; to receive all news and to communicate them to all the registered member by e-mail. This association has organized several meetings with its associates, to explain the contents and procedures for accessing to EU funds. Most communication is nowadays made online, through internet. The free lance agronomists have been very active, to inform farmers potentially interested in developing a project, and they are very active in the follow up, because their income is largely dependent on the quality and quantity of the projects and grants.

5. Conclusions

The second Pillar of the Common Agricultural Policy is largely dependant on the quality of the projects submitted by farmers, who rely on the information provided by Public Administrations, NGOs and private consultant. At present, it seems that in Umbria the different stakeholders have been quite active, to channel towards the potentially interested farmers a great quantity of information. For this purpose, several methods and media have been used, but their impact still has to be measured.

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COMPARING INFORMATION IN ORGANIC FARMING, CONVENTIONAL AGRICULTURE AND INTEGRATED CROP MANAGEMENT

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Keywords: Information sources, advisory work, organic farming, integrated crop management.

1. Introduction

The world as a whole is changing and agriculture is struggling to keep up. In other words, the global economy, competition, climate change, food security and quality management are all putting tremendous pressure on the primary modes of production, trade, the food production industry and the government to promote demand-led sustainable agriculture and land use. Consequently, farmers, as the main actors in agricultural systems, have been struggling with expected or unexpected changes in their profession (Karbasioun et al, 2008).

In this constantly changing environment that prevails in the agriculture sector, the problems that farmers face are numerous and focus mainly in the production cost, the low prices of agricultural products and their distribution and issues affecting the quality of agricultural products. The role of information sources is crucial and affects farmers that practice sustainable and conventional farming methods.

2. Purpose and Objectives

The main purpose of the current study was the investigation of the frequency of information's available sources utilization and the evaluation of the offered advisory work from the farmers of Central Macedonia (Greece). The specific research objectives were: a) the determination of factors that influence more the frequency of advisory services' demand and, in consequence, will have to be taken into account at the planning of any informative approach of the rural population and b) the examination of the effect that the farming system has in producers' attitude as it concerns the institutions that supply information and advisory work.

In any case, the type of farming system affects the attitudes of farmers so as to existing information sources and to agricultural education (Lioutas et al, 2008). Moreover, the more the producers make more intensive use of sources of information, the higher will be their scores on the farm management and marketing training needs scales (Rimawi et al, 2004). Kleih and Janowski (2004) discovered that the most important learning strategies used by farmers at farmers' markets are learning through the family, neighbours, radio and traders. According to Karbasioun et al (2008), the higher educated farmers have more contact with agricultural specialists in their farming activities, have made more contact with agricultural extension personnel in their areas and are less satisfied with governmental support of rural small industries. However, the effectiveness of state extension can be enhanced if the services of other professionals such as commercial representatives who work for producers can be improved by training and the provision of information (Dalton, 1980).

For sustainable agriculture farmers the main source of information was other farmers (Agunga end Igodan, 2007). Dealers were a frequently-used source of information on sustainable agriculture (Gamon and Scofield, 1998) while Bruening et al (1992) found that farmers obtain information about environmental issues mainly from newsletters, manuals and magazines. Tolchinsky's survey (in Gamon and Scofield, 1998) included dealers and extension agents in their top five preferred sources for pesticide information. Agriculturists-extension agents throughout the world are continuously experimenting and enhancing agricultural practices in an effort to reach the goals of sustainability (Boone et al, 2007).

3. Methodological framework

The study focused on farmers in Northern Greece. Producers were interviewed in a quantitative, structured way by using a specialized structured questionnaire. The research instrument contained closed or restricted questions (binary or multiple). Using a random sampling procedure, a sample of 207 producers - 71 who use conventional methods in their farms (C.F.), 69 who apply practices of integrated crop management (I.C.M.) and 67 organic farmers (O.F.) - was selected to be included in the study. A confidence level of 95 percent was also established. The survey was carried out by interviewing the sample with the face-to-face method. The data were collected, during the period of May 2007 to March 2008. The data were analyzed using the Statistical Package for Social Sciences (SPSS). To test the differences between the ratings of the study scales that were measured on an ordinal scale, the non-parametric tests Mann-Whitney and Kruskal Wallis were used. Spearman rank (in the paper is referred as “rho”) test was used to measure the correlation between the scale scores and ranked variables (Rimawi et al, 2004). As method of multivariate analysis, was selected categorical regression, to describe how much of the variance in the examinant variable (communication frequency with information sources) is explained by the weighted combination of a set of independent variables and the relative importance of each independent variable.

4. Findings

The demographic characteristics of the producers' sample are presented in Table 1. About half of the 207 farmers aged 31-50 years (49.8%), while the majority are men. Regarding the educational level of respondents, the higher frequencies are presented in Lyceum (26.6%) and High School (21.3%) graduates.

Table 1. Demographic characteristics of the sample

Variable	Category	Percent %	Category	Percent %
Gender	Man	83.1	Woman	16.9
	<20	5.8	41-50	26.6
Age	21-30	13.5	51-60	19.3
	31-40	23.2	>61	11.6
	Some primary classes	10.1	Lyceum	26.6
Level of education	Primary School	15	IVT ²	6.3
	High School	21.3	TEI ³	4.3
	TPS ¹	13	University	3.4
	Up to 6,000	1.9	12,000-15,000	36.2
Farm income (euros)	6,000-9,000	6.3	15,000-20,000	16.4
	9,000-12,000	35.7	More than 20,000	3.4

¹: Technical Professional Schools, ²: Institute of Vocational Training, ³: Technological Educational Institute

Only 14% of the total sample has continued post-secondary education, while one in ten has not completed primary education. Income from agriculture follows normal distribution, with the curve maximum in the categories of 9,000-15,000 euros. 23.7% of farm operations are smaller than 2 ha, 41.5% are between 2 and 5 ha and 34.8% of farms are larger than 5 ha. The permanent work comes primarily from members of the rural family as the average of permanently employed on farms operations is 1.99 persons, while on average, each farm employs 0.37 workers. In more than half the farms, among cultivated species grown, include trees (52.7%) and vegetables (50.2%). Arable crop plants (32.4%) and vines (11.1%) follows.

About the problems faced by farmers, a significant majority referred to the high cost of production, the products' poor quality, the low prices and the disposal problems. As shown in the Table 2, these problems have

different importance for the three groups. The sources of information have different importance for the three groups in the sample (Table 3).

Table 2. Distribution of the sample based on the problems faced by farmers

Problems faced by farmers	Mean			Kruskal – Wallis Test	Mann-Whitney Test
	C.F.	I.C.M	O.F.		
Difficulties in the products' disposal*	2.68	3.67	3.64	$\chi^2=50.441$,	I.C.M., O.F.>C.F.
Problems due to low prices*	2.03	3.14	4.01	$\chi^2=109.200$,	O.F.>I.C.M.>C.F.
Problems due to high production cost **	4.38	4.39	4.34	$\chi^2=0.020$, p=0.990	-
Problems caused by poor product quality	3.94	4.36	4.81	$\chi^2=41.156$,	O.F.>I.C.M.>C.F.

* 1: Strongly Agree, 2: Agree, 3: Neither Agree Nor Disagree, 4: Disagree, 5: Strongly Disagree

** 1: Strongly Disagree, 2: Disagree, 3: Neither Agree Nor Disagree, 4: Agree, 5: Strongly Agree

Table 3. Distribution of the sample based on the information sources used

Used sources of information *	Mean			Kruskal – Wallis Test	Mann-Whitney Test
	C.F.	I.C.M	O.F.		
Private sector's agriculturists	4.15	4.1	3.31	$\chi^2=29.919$,	C.F., I.C.M.>O.F.
Agriculturists of Rural Development	2.14	2.26	1.49	$\chi^2=22.197$,	C.F., I.C.M.>O.F.
Agriculturists of Governmental Agencies	1.18	1.43	1.27	$\chi^2=9.222$, p=0.010	I.C.M.>C.F., O.F.
Agriculturists of Cooperative Societies	2.00	2.28	1.09	$\chi^2=49.492$,	C.F., I.C.M.>O.F.
Advisors	1.2	4.13	1.6	$\chi^2=138.404$,	I.C.M.>O.F.>C.F.
Agriculturists of certification body	-	2.31	1.93	$\chi^2=2.400$, p=0.121	-
Other farmers	3.14	3.51	3.85	$\chi^2=17.716$,	O.F.>I.C.M.>C.F.
Family-friends	3.21	3.58	3.96	$\chi^2=12.531$,	O.F.>C.F.
Agricultural journals	1.42	1.94	4.12	$\chi^2=112.315$,	O.F.>I.C.M.>C.F.
Agricultural organizations	1.55	2.58	3.33	$\chi^2=54.339$,	O.F.>I.C.M.>C.F.
Local - regional authorities	1.59	1.86	1.21	$\chi^2=20.187$,	C.F., I.C.M.>O.F.

*1: Never, 2: Rarely, 3: Often, 4: Quite often, 5: Very often

Specifically, the group of conventional agriculture communicates regularly with the private sector's agriculturists, for the farmers who implement systems of integrated crop management most important source of information are agriculturists consultants, while organic producers more often use farm magazines. Remarkable is that for all three groups, the agricultural population is an important pool of information. Instead, the role of government agencies and local-regional authorities to information is extremely depressed.

This conclusion is confirmed by the low satisfaction's degree with the advisory support of government agencies (Table 4).

Table 4. Distribution of the sample based on the satisfaction of the advisory work

Satisfaction of the advisory work *	Mean			Kruskal – Wallis Test	Mann-Whitney Test
	C.F.	I.C.M	O.F.		
Private sector's agriculturists	3.75	3.90	3.16	$\chi^2=21.123$,	C.F., I.C.M.>O.F.
Agriculturists of Rural Development	1.66	1.77	1.37	$\chi^2=6.963$, p=0.031	I.C.M.>O.F.
Agriculturists of Governmental Agencies	1.10	1.19	1.16	$\chi^2=0.586$, p=0.746	-
Agriculturists of Cooperative Societies	1.94	2.19	1.09	$\chi^2=40.778$,	C.F., I.C.M.>O.F.
Advisors	1.20	3.83	1.49	$\chi^2=127.979$,	I.C.M.>O.F.>C.F.
Agriculturists of certification body	-	2.19	1.75	$\chi^2=2.652$, p=0.103	-

* From 1: Not satisfied to 5: Very satisfied

The use of media to inform the rural population is limited. However, most farmers feel that their usefulness could be higher than the existing form. Thus, 69.6% of farmers believe that the usefulness of television lags behind the value it could have. The corresponding rates for radio and newspapers are 76.8% and 63.8%. Moreover, it is noteworthy that farmers who have a low frequency of cooperation with existing sources of information, tend to consider high the potential usefulness of sources: “TV” ($\rho=-0.292$, $p=0,000$), “radio” ($\rho=-0.246$, $p=0,000$), “newspapers” ($\rho = -0.283$, $p = 0,000$) and “agricultural journals” ($\rho=-0.220$, $p=0,000$).

It has been believed useful to carry out a categorical regression analysis of the variable “communication frequency with information sources” to look for confirmations of the importance of five groups of variables:

- Group A: Variables related to demographic characteristics (“gender”, “age”, “level of education” and “principal occupation”)
- Group B: Variables referred to the farm cultivated species (“arable crop plants”, “vegetables”, “vineyard” and “trees”)
- Group C: Variables related to characteristics of farm enterprises (“farm income”, “farm size”, “family members employed on a permanent basis” and “workers employed on a permanent basis”)
- Group D: Variables that measure the degree of satisfaction from information sources (“private sector’s satisfaction”, “satisfaction from agriculturists of cooperative societies”, “satisfaction from advisors” and “satisfaction from certification body”)
- Group E: Variables referred to difficulties or problems faced by farmers (“difficulties in the products’ disposal”, “problems due to low prices”, “problems due to high production cost” and “problems caused by poor product quality”).

165 cases have been analyzed. Dependent variable - measured in ordinal scale - include categories: “low” (1.9%), “rather-low” (64.7%), “rather-high” (32.8%) and “high” (0.5%).

Transformation predictors explain 92.3% of the variance of the transformed dependent variable ($R^2=0.923$). The iterations’ number with which approached 0.00001 convergence criterion was 46. Statistical significance of statistic F is less than 0.05, (0,006), showing that the composition of variables, considered in this model, significantly contribute to changes in “communication frequency with information sources”.

Table 5 summarizes standardized coefficients and the yielding F test for each independent variable. As showed in the table, the larger values both for “beta” coefficient and F test, occurs for “level of education”, reflecting the importance of a farmer’s educational level in prediction of “communication frequency with information sources”. Relative importance of “level of education” (37.5%), confirms this great contribution.

The table’s column “Importance %”, shows that the contribution in interpretation of variable “communication frequency with information sources” corresponds to: 33% for Group A', 28.2% for Group D', 20.9% for Group C', 19,2% for Group B', while variables of Group E', present negative contribution (-1,4%) in the dependent variable’s prediction.

Variables with negative values of relative importance can be regarded as not contributing in the model. However, have not been removed, because: a) regression’s target was to investigate the relationship between groups of independent variables with dependent, b) it is inevitable in a set of variables, that describe common characteristics (like the variables referred to difficulties or problems faced by farmers), to be related to one another.

Table 5. Results of regression analysis to estimate farmer's communication frequency with information sources

	Independent Variable	Beta	F	Importance (%)
	Gender	.238	1.322	4.3
A	Age	.436	1.481	-8.2
	Level of education	.797	3.011	37.5
	Principal occupation	.023	.013	-0.6
	Arable crop plants	.196	1.476	3.2
	Vegetables	.127	.355	6.5
B	Vineyard	.253	1.493	1.1
	Trees	.324	2.146	8.4
	Farm income	-.368	.703	8.2
	Farm size	-.181	.259	9.7
C	Family members employed on a permanent basis	-.063	.049	0.0
	Workers employed on a permanent basis	-.138	.143	3.0
	Satisfaction from certification body	.396	2.129	22.8
	Private sector's satisfaction	.227	.649	9.3
D	Satisfaction from agriculturists of cooperative societies	-.213	.609	-3.9
	Satisfaction from advisors	-.005	.000	0.0
	Difficulties in the products' disposal	-.051	.023	-0.7
E	Problems due to low prices	.375	.578	4.6
	Problems due to high production cost	.470	1.919	-6.1
	Problems caused by poor product quality	.031	.011	0.8

5. Conclusions

The vision of agriculture presents notable differences among the three groups of producers. This may explain the tendency to use with different frequencies the information sources. For the group of conventional agriculture, the private sector's agriculturists are the most important source of information.

Farmers that apply systems of integrated crop management communicate regularly with advisors, while in the group of organic agriculture farm magazines are the most common source of information. As other causes of asymmetry in the use of information sources can be considered: a) the different weight of problems in the three farming systems and b) the differentiations in the degree of satisfaction with the provided advisory work. In any case, the communication frequency with information sources is mainly affected by the farmers' demographic profile, especially the producers' level of education, while farm characteristics, particularly the farm size, have a positive effect in increasing the degree of information seeking.

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THE ROLE OF PRESENT EDUCATION ON THE IMPROVEMENT OF PEASANT LIFE SKILLS BY CHANGE AGENTS OF RURAL AGRICULTURAL SERVICE AND EXTENSION CENTERS IN KURDISTAN, PROVINCE OF IRAN

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Keywords: Rural agricultural service and extension center, life skills, change agent.

1. Introduction

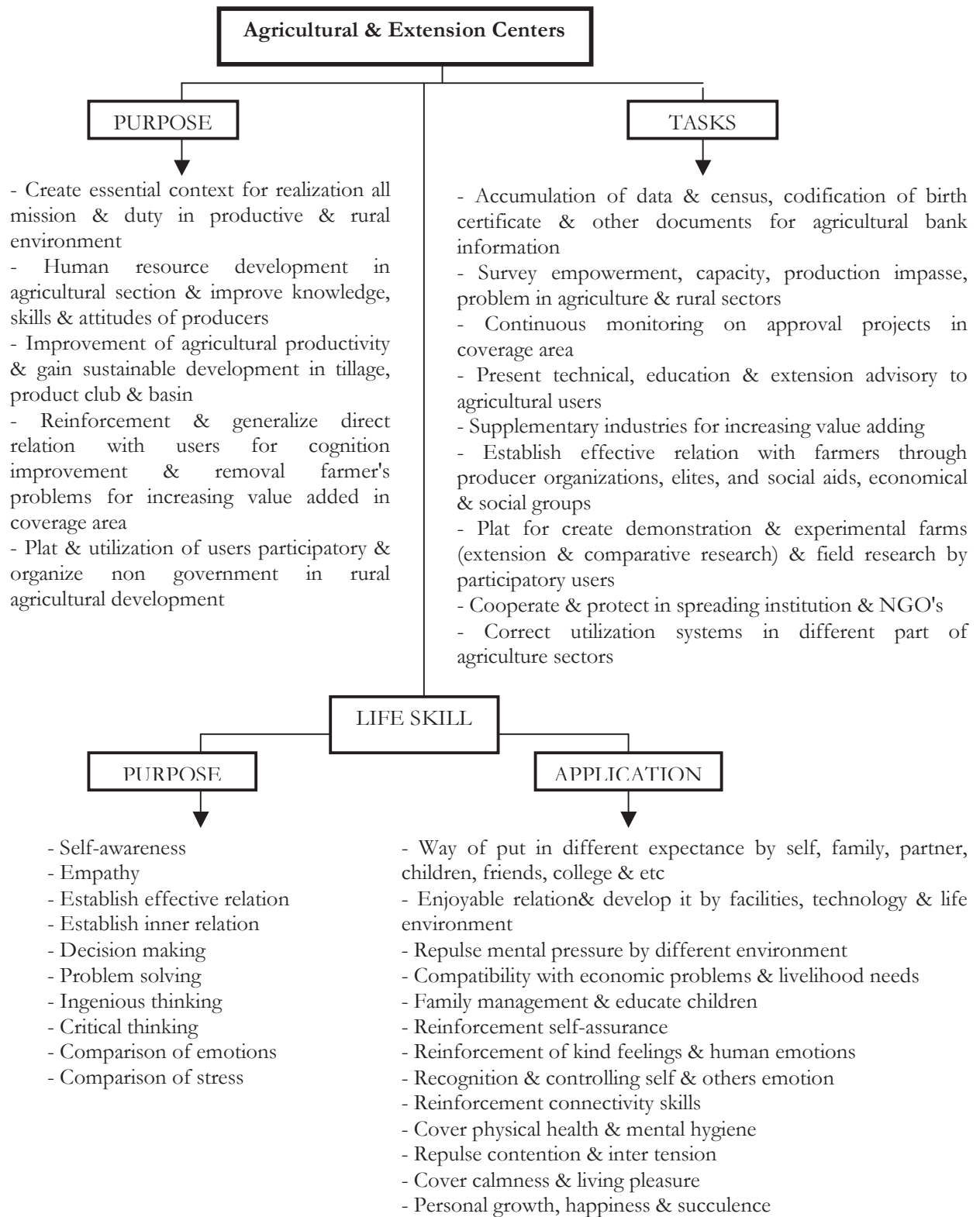
Today's needs, rapid changing socio-cultural relations, modifications of family structure; wide-spread and complex human communication networks; span of information sources impose numerous challenges to people, as well as stress and pressures in their life. This is particularly true and a challenge for the rural population, which has not enough capacity and lacks many of the social services and welfare facilities centralized in cities and metropolis (Omar loo, 2007).

Villages face hard migration, especially of young generation. It makes remaining population vulnerable to meet crucial problems and influence learner sensing especially successful life skills its self and others. Also, accruing these skills needs other insights about individual persons. Because of those acquiring life skills were change person and also its environment (Ahmadi ali abadi, 2008). In these conditions, reliance on development participatory, continuing education and extension are a suitable solution for controlling events and accidental occurrences.

Rural society is composed of small villages, where groups of men have same life way, language, custom and social exigible living by each others (Bross, 1992). Some of global theorizers and development programmers believe that material progress indicators could not evaluated degree of comfort and efflorescence of men. They point out that other scales such as human development should be copnsidered. This kind of development signifies grand human value and socio-culture movement in his life (Smith, 2004). Thence, human is a purpose of human development and all human process must alter and developed. For adduction and facilitation of necessary situation with convergence human power development and essential instruction must existence a suitable place and persons which eliminate educational needs. According to legal acts of agricultural extension services and agricultural ministry of extension services established and book keeping instruction for these centers imparted (Nooshadravan, 2007). Spot role of education for human capacitate on acquiring ability of life skill & role of extension rural centers could efficient in other non-agricultural sectors (Anonymous, 1998). It was consider to main role of agents & change agents on rural services for training living skills and also, improving way of living agricultural users & especially deprived peasants & increase social power & investigations. This paper tries to Assessment of role of presented education on improvement of peasant life skills by change agent of rural agricultural service and extension center. Purpose of this essay is:

- To determine the personal characteristics;
- To discovering role of extension service to empowerment peasants in life skills;
- To priories life skills through change agents on service center.

FIGURE 1: Theoretical framework for Assessment of role of presented education on improvement of peasant life skills by change agent of rural agricultural service and extension center



2. Materials and methods

The study includes all change agents of rural agricultural service and extension center in Kurdistan province of Iran. This was a descriptive – correlation study, a reliability coefficient of 97.4 (Cronabach Alpha) was achieved for the instrument. The total population of the study was 120 change agents of agricultural service and extension center of Kurdistan province that were selected randomly .finally the data were collected personally by questionnaire the respondents. After collection of data it was compiled and analyzed using SPSS software.

3. Findings and discussion

Table 1 show that the result of descriptive statistics about contribution of extension center in control of life skills. Factor analysis include of the entire factor about life skills in which extension center have educated (Table 2).

Table 1. Contribution of extension center in control of life skills

	frequency	Percentage%
Low	12.00	10.00
Medium	54.00	45.00
High	54.00	45.00
Total	120.00	100.00

Table 2. Derivation factor to Eigen value, percent of cumulative.

Factor	Eigenvalue	% of variance	Cumulative%
Factor1	6.96	14.50	14,50
Factor2	5.54	11.54	26.04
Factore3	4.64	9.67	35.71
Factore4	4.61	9.61	45.32
Factore5	4.18	8.70	54.02
Factore6	3.57	7.44	61.46
Factore7	2.50	5.21	66.67

Between all of the skills accepted 28 factors in the factor analysis. Table 3 shows seven factors after rotation. Table 4 shows the result for regression analysis by stepwise method. The result of regression shows that 26% of the variance in the factors which affect the improvement of peasant skills could be explained by axiology factor.

4. Conclusions

This 7 factors (Self- identify and control, Problem finding and resolving, Communication skills and group, Decision making and planning, Interaction with others, Social skills, axiology) are very important for training chance agent.

The results of factor analysis shows that the most of factor is axiology, so it used for Educating of positive thinking, awareness of in equality, Social impact on value, attitude and explain of value to rural.

The results of regression show that axiology factor can improve peasant life skills.

Self –identify, control factor, axiology factor and philosophy of extension are improved empowerment and self direction of placenta.

Table 3

Factors' name		
Self- identify and control	Education to rural empowerment	0.827
	Education to rural empowerment in relation with behavior	0.733
	Help to rural awareness	0.690
	Education to relax	0.671
	Making motivation	0.557
	Self- reliance	
Problem finding and resolving	Education of resolving with afraid and anger	0.803
	Education of resolving for using drag	0.776
	Education of solve –problems	0.752
Communication skills and group	Communicating verbal and nonverbal	0.682
	Educating to discussion with rural people	0.664
	Educating participation between rural people	0.655
	Educating to listening	0.649
	Educating to confidence between rural people	0.620
Decision making and planning	Planning education and accepting responsibility	0.764
	Educating decision making	0.747
	Educating identify purpose	0.665
	Educating time regulation	0.638
Interaction with others	Education of interesting with others	0.796
	Accepting individuals with different mentality	0.656
Social skills	Education of rural citizens	0.841
	Education to respect to others	0.727
	Education of roles	0.559
	Identification of personal territory	0.449
axiology	Education to positive thinking	0.768
	Awareness of inequality and injustice	0.746
	Social impact on value, attitude and behavior	0.608
	Explain of value to rural	0.538

Table 4.Motivate regression analysis

	B	Beta	T	Sig.
Constant	1.534	-	3.943	0.000
Axiology	0.129	0.522	-	0.000
R=0.527 R2=0.278 Adjusted R2=0.266 F=23.862 Sig.f=0.000				

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SERVICES AVAILABLE FOR MEAT CATTLE BREEDERS IN UMBRIA

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Keywords: Rural Development Policy, Communication, Umbria.

1. Introduction

Animal genetic biodiversity is decreasing everywhere. The causes of biodiversity depletion are widely known, as are the ecological and socio economic consequences of farm animal loss (OECD, 1996; Pearce and Moran, 1994). In developed economies, the price pressure on producers is such that only the most performing genetic lines are surviving. Since 1992, the European Union funds on-site conservation programs, for a small number of breeds, while several other ones still do not have such support. Many breeds, once economically important, are now very rare, and yet they possess characteristics of potential value (Hall and Bradley, 1995). The challenge to biodiversity conservation is the development of strategies, action and institutions that can slow the rate of genetic erosion, and possibly invert such trend (Signorello and Pappalardo, 2002).

Umbria, in Italy, hosts one of the most ancient cattle breeds, the Chianina (the name comes from Val di Chiana, a valley between Tuscany and Umbria), known since the Roman times for its size, strength and meat quality. After WWII, the mechanization of all farm activities has made useless the physical strength of this breed and the meat has remained the only marketable product. Unfortunately, the Chianina productive performance is not comparable with that of other breeds (both Italian and foreign), while the massive imports of meat have always kept the prices at low levels (Marchini and Santucci, 1991). The combined effects of such situation have determined the continuous decline of the Chianina stock, which now accounts to about 50-60,000 heads, compared to half a million in 1961. Four other Italian cattle breeds suffer a similar trend: Marchigiana, Maremmana, Romagnola and Podolica, with the last one almost extinct.

However, in the last years the demand of safe and high quality beef meat has increased and a complex network of institutions has emerged, whose main purpose is to save the endangered breeds through efficiency at farm level and better marketing initiatives (Ansaloni and Torquati 2001, Ventura 2001).

2. Materials and methods

This survey about the importance of the technical assistance and consultancy in meat cattle sector in Umbria was realized through the direct testimony of operators and directors of the most important Umbrian breeders associations (Creswell and Maietta 2002, King 2004). During the first months of the 2009 the people in charge of managing the breeders training and assistance have been interviewed about their associations, the main activities and some financial aspects.

3. The organizations

ANABIC – National Association of Meat Cattle Breeders: The “Associazione Nazionale Allevatori Bovini da Carne” (was established in 1961 (legally recognized in 1966) to promote and implement all initiatives for improving, developing and diffusing the autochthonous Italian cattle breeds. It inherits the legacy of pre-existing individual National Breed Associations under the umbrella of the Ministry of Agriculture (MoA), but includes,

however, only five of the several Italian breeds and specifically the five “white breeds”, so called because of their skin colour: Chianina, Marchigiana, Romagnola, Maremmana and Podolica.

Thanks to generous funding from the Ministry, over the time ANABIC has been able to set up a central office and a main selection centre in Umbria, where young bulls of three breeds are analysed (Chianina, Marchigiana, Romagnola), while two minor centres are in Tuscany (for the Maremmana) and in Basilicata (for the Podolica).

ANABIC is managed by an assembly of 43 Associazioni Provinciali Allevatori (APA = Provincial Associations of Breeders), who appoint a Council of 14 people (5 representing the Marchigiana breeders, 4 the Chianina, 2 each for the Podolica and Romagnola, one for the Maremmana). The Council is integrated by three persons without voting rights: a representative of the Italian Association of Breeders (AIA), a representative of the Technical Commission (composed by representatives of the MoA and of the Regional Governments) and by the ANABIC Director.

ANABIC relies on a total staff of about 20 people, out of which 7 are qualified technicians (BSc or more), some deal with administration and some are skilled workers, who physically care about the animals.

Activities: ANABIC manages the National Herd Book of the five breeds and annually evaluates the performance of about 260 young bulls (an intake of 15 per month) which are selected, after nomination by their owners, by the ANABIC internal and external (about 50) experts. These bulls, grouped by breed, are weighted at their arrival, daily remotely controlled of their food intake, and finally, after one month quarantine and six month observation, their conversion rate is calculated.

An auction takes place quarterly at ANABIC, with buyers coming from all over Italy.

Training and information: Each 3-4 years, training programs are organized for breed experts, articulated in a week of theory and a week of practical work. Such training is required to be an external ANABIC expert, or to be appointed as judge or panellist for animal fairs and exhibitions. ANABIC distributes freely about 2.000 copies of a two-monthly magazine, and occasionally produces conference proceedings, research reports, also distributed for free. ANABIC is normally present at the most important regional and national agricultural fairs, with its own booth or in cooperation with local APAs, to promote its own image and strengthen importance of genetic improvement.

Financial aspects: The MoA covers 90% of the costs of the Genealogical Records, 70% of the Genetic Centre, with the balance respectively provided by the APAs and by the owners of the bulls; The 54 APAs contribute annually with 2 €/head for the annual running costs of ANABIC. Auction fees are also charged. Some other resources have been found, in the past, with EU projects and mainly as grants from Chambers of Agriculture, or from local Banks and Regional Governments. The prospects are not so good, since the MoA has announced for 2010 a 30% cut in its annual contribution, which will then drop by another 17% in 2011.

APA – Provincial Breeders Association: In Italy the technical assistance in animal husbandry sector has been delegated to the Associazioni Provinciali Allevatori (APA – Provincial Breeders’ Association) in the 1940s. The APAs were established after WWII, to provide technical and managerial support to producers. All APAs are members of the Associazione Italiana Allevatori (AIA - National Breeders’ Association) and locally manage the functions entrusted by the MoA.

The APA of Perugia was founded in 1947 and legally recognized in 1961. It performs productive checks on livestock and offers technical support to the members. It is a member of ANABIC with which collaborates tightly. The APA consists of six active sections: meat cattle, dairy cattle, heavy horse, sporting horse, swine, sheep and goat.

The Association is managed by an assembly of 800 members, who appoints a Council of 17 people (11 elected by the assembly and 6 presidents of the sections). The APA relies on a total staff of about 14 people, out of

which 10 are technicians (vets, agronomists, etc.) and four deal with administration. Presently, the APA also employs six permanent consultants for technical matters.

Activities: APA manages the Herd Books of milk cattle, sheep, goat, horse, swine breed species on provincial level and carries out functional controls on the animals registered in them, collecting productive data, fundamental to the genetic selection work.

Although ANABIC directly deals with the National Herd Book of the five autochthonous Italian breeds, APA technicians carry out functional controls and activities on the field to measure and collect all the quality parameters needed to evaluate genetic and morphological characteristics of these species. They choose and point out to ANABIC the animals worth to be selected.

APA manages also the ATZ Plan (Piano Regionale dei Servizi Integrati di Assistenza e Consulenza Tecnica in Zootecnia, a regional plan with the objective of improving technical and economic farm management).

Training and information: Although APA is not an accredited training centre for breeders, generally once a year it organizes meetings and workshops to inform its members about new EU regulations and to debate emerging issues of each husbandry sectors. Moreover the APA promotes regional animal fairs and exhibitions. The APA distributes a three-monthly free leaflet ("APA Informa") to the members.

Financial aspects: The MoA covers about 80% of the Herd Books management costs, while the last 20% is covered by the membership fees (there is an additional fee for the breeders who have animals registered in the Herd Book). APA has just started to supply other two types of services which have been emerging as important financing businesses: animal carcasses disposal and insurance policies for cattle. Also the selling activity of selected semen and raw materials contributes to cover APA costs.

APA sponsors ITALIALLEVA, an AIA brand created to guarantee selected animals meat quality and to boost high quality food consumption.

CCBI – Consortium of Producers of Prized Beef Meat of The Italian Breeds: The CCBI was founded in 1982 by a group of breeders to protect and promote the Italian beef cattle breeds: Chianina, Marchigiana, Romagnola, Maremmana and Podolica. In 1984 the consortium received the "5R" label approved by the MoA.. It guarantees the quality of the meat and makes it possible to trace every individual head from the producer to the consumer. In 1993, under the EC Reg.2081/92, the CCBI, acting as the promoter agency, requested the recognition of the PGI Vitellone Bianco dell'Appennino Centrale; which was obtained in 1998, and CCBI settled up GPI activation until the foundation of the Consortium of Protection. In 1999, in view of EC Reg820/97 (later EC 1760 and EC 1825/2000), the CCBI requested and obtained the recognition of the system of traceability and labelling (IT003ET) for the meat of Italian breeds. One of the most important goal of the Consortium is to control the Labelling Regulation application by breeders and butchers who produce and market this high quality beef meat.

The awareness of the need to organize the supply chain of the beef cattle of the Italian breeds led the CCBI to connect supply and demand through a first agreements with the distributors in which the producers were guaranteed a just price and the distributors were guaranteed a constant supply. In 2000 the large distributors began marketing the 5R labelled meat, having overcome the fragmentary nature of the farms and the consequent difficulty of finding this type of beef.

The Consortium has focused a lot of attention to the consumers, developing a series of publications that have helped the people know about the world of production, autochthonous breeds and the rearing system. In order to provide useful advises about the correct ways to use the meat preserving its excellent characteristics, the CCBI realized "I Quaderni della Carne"- "Beef Notebooks" and developed collaboration with the best professionals in the national gastronomic world (Fedeli, 2005).

Consortium of Protection “IGP-VITELLONE BIANCO DELL’APPENNINO CENTRALE” This Consortium of Protection of the PGI labelled White Calf of the Central Apennines) was established in 2003, after the European Union had recognized the its Production Regulation, to protect and differentiate three Italian autochthonous cattle breeds: Chianina, Marchigiana and Romagnola. The Consortium main aims are to protect, promote, valorise such breeds and to inform the consumers. The Consortium has 2,034 associate breeders, eight slaughterhouses, 352 butcheries and 42 dissection laboratories, while the controlled units are many more, respectively 3,103, 91, 839 and 98. In 2008, 13,354 heads of cattle were certified PGI “Vitellone Bianco dell’ Appennino Centrale), 546 more compared to the previous year. The breeders of PGI animals are able to obtain a premium price on the market. The Consortium staff consists of a president, a director, one technical coordinator, two qualified technicians, one IT expert and one person deals with administration.

Activities: Consortium activities are all related with the protection of the entire PGI food chain aspects, including PGI label management and market promotion. Improvement of meat quality and uniformity of production are constantly pursued thanks to a careful service of consultancy to the breeders. According to the PGI Regulations, the Consortium has to carry out three fundamental activities: a) cattle data collection, control and certification; the Consortium collects and overlaps the data from ANABIC (National Association of Meat Cattle Breeders) and NDB (National Data Bank of cattle), furthermore it manages an on-line certification service which makes easier the control system through slaughterhouses, section labs and commercial operators; b) supervision, protection and preservation from misuses of the brand, unfair competition, falsifications; the Consortium collaborates with 3A-Umbrian Technological Park (the regional institute of certification in charge of controlling and guaranteeing PGI meat quality) and the Central Inspectorate for Quality Control on Agro-food products to ensure constantly the conformity with the Production Regulation of every step of meat production implementation of promotional events and activities for the valorisation of the PGI brand: the Consortium participates in fairs, congresses and various events in which PGI-Vitellone Bianco dell’ Appennino Centrale characteristics are presented. The consumer information has been developed to provide a more precise understanding of the characteristics and the quality of the PGI certified meat and about the guarantees that the PGI brand implies.

Training and information: the Consortium joins in projects by Umbria Region and EU to support breeders in promotional activities with the aim of increasing consumers’ awareness about food quality issue, and at the same time increasing PGI meat market price. Usually the Consortium takes part in events and fairs about breeding sector and food quality issues and it realizes promotional and educational materials to hand out at the fairs or to be distributed at butcher’s shops. In the last years, the media have been increasingly focused on safety and quality, so the Consortium made information campaign through the pages of important newspapers and trade magazines.

Financial aspects: every member of the Consortium has to pay a fee, and an additional fee is paid to the certification company to obtain the PGI logo.

BOVINITALY: This cooperative was established in 2007 to achieve a fair revenue for Italian autochthonous cattle breeders by better marketing. The pressure of the supermarket chains on the breeders has made necessary a strong market power, through the association of several producers, with the intention of improving their entrepreneurial capacities and their promotional abilities.

Actually, Bovinitaly is an organisational and operational tool to aggregate the output and to face retailers as a unique subject. It tries to make up for structural supply and commercial deficiencies in the meat sector, above all in high quality cattle meat one. The cooperative has 173 members from Central and Southern Italy, of the five Italian “white breeds” (Chianina, Romagnola, Marchigiana, Podolica and Maremmana) and of their crossbreds. Bovinitaly deals with commercialization of both PGI branded and not PGI branded beefs (in 2008 it marketed about 23% of total PGI certified cattle and 19.6% of total IT003ET labelled cattle).

Bovinitaly has a very thin structure, with a total staff of nine people (1 director, 5 technicians and 3 administration personnel).

Activities: the cooperative manages both technical-economical and promotional activities. Specific software to process technical data has been developed by Bovinitaly and a wide range of services is provided to producers for the constant monitoring of animal conditions and meat production. Bovinitaly collaborates with the APAs and a network has been developed to evaluate and improve production activities and to up-to-date the farmers about environmental and health regulations.

Training and information: Training courses are organized to inform breeders about innovations to improve meat cattle production and farm management efficiency; these courses also focus on different issues, from animal welfare to commercial agreements with large-scale retail trade actors.

Every four months Bovinitaly staff produces and distributes a free magazine (“Bovinitaly News”) to inform the members about meat market trend and prices, funding opportunities, new regulations to respect, events and trade fairs.

4. Conclusions

Traditional technical assistance, as the one provided by the APAs since the late ‘40s has demonstrated its inability to cope with the different economic conditions of a modern economy. Purely technical advice did not prevent the progressive reduction of the cattle stock. A new approach was needed, to link the producers to the markets in a cooperative way. This has been progressively achieved through the 5R consortium, the PGI recognition and finally the Bovinitaly marketing cooperative. This demonstrates that these two components – the technical one and the marketing one – must work in a coordinated manner. Some overlapping and some jealousies / mistrusts have also emerged, and the entire system could probably be rationalized. In 2010, a direct survey to cattle owners will be implemented, to collect the producers’ opinions.

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EXTENSION OF ORGANIC DAIRY MARKETING IN UKRAINE AND INTERNATIONAL HARMONIZATION OF ORGANIC STANDARDS

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Keywords: Organic dairy farming, conventional farming, extension, international organic standards.

1. Introduction

Ecological catastrophes during the 1960-1970's have been increase environmental problems within the society. The evolution of eco labeling as a response of the global environmental protection. Examining marketing orientation organic dairy for Ukrainian consumers showed results of survey which indicate that for Ukrainian consumers ambiguous concerning meaning of the "organic product". The Oxford English Dictionary defines "organic" as "produced without artificial fertilizer or pesticides". The Ukrainian respondents give their interpretation of the term "organic food", like "foods without chemicals elements", "naturally", "healthy food", "food from village garden", "biological foods" and etc. Survey data collected from 112 consumers in one location Kiev city. Only 30 percent consumers in Kiev city claim that ready to purchase and consume organic foods regularly and price doesn't matter. Another 39 per cent consumers heard about organic but still confuse with that term, because prefer to purchase foods on the farmer markets and they claim that believe that foods there fresh and healthy then in big supermarkets. The 17 percent never hear about organic foods but hear about genetics modified. Last 14% assert that sure that haven't any difference between organic and genetically modified foods for human being stomach.

Organic living is the ultimate outcome of the organic philosophy. The principles of sustainability, returning to the earth what is taken away, and recycling apply to all aspects of production and consumption beyond the field and garden. Organic agriculture becomes the foundation of philosophy that seeks a sustainable future for life on the Earth. (2). Conventional farming is dependent upon, and addicted to, outside inputs. When an external input provides something to a system that is normally derived from within the system, then that internal source tends to atrophy. In conventional farming the farmer has an inevitable tendency to become addicted to the use of artificial external inputs. (2)

An organic dairy farming system can be defined as a system that aims to produce milk of a high nutritional quality by using farming method that avoid the use of manufactured agrochemical inputs (compounded artificial fertilizers, pesticides, growth regulator and feed additives) and can be sustained by rotations and recycling of organic wastes (1).

The main problems in the organic milk market in Ukraine are:

1. Not enough education of consumers;
2. Not good collaboration and cooperation in the relationship between farmers, processors and retailers;
3. Difficult in management system of demand and supply;
4. Establishing the fact about organic farming and organic products;
5. Identification of organic dairy market opportunities and threats;
6. Lack of organic production inputs (composting materials, biopesticides, biofertilisers);
7. Lack of labors and not enough research and development (production methods);

8. Infrastructure problems, limited market information and channels
9. Ukraine hasn't institutions which can certify organic farming and organic products. Some big farms use inspection services foreign certifiers.

There are also other differences conventional and commodity-oriental markets and differentiated markets that exist for many organic products. (7)

Conventional markets: 1. Commodity price pressures; 2. Reward for quality and price; 3. Easy market access; 4. Intense competition; 5. Government support; 6. Broad market size; 7. Short learning and cost curve.

Differential markets: 1. Consistently higher prices; 2. Reward for quality and process; 3. Limited market access; 4. Moderate competition, 5. Limited government support; 6. Very limited market size; 7. Longer curve: certification, etc

Niggli and Willar define four stages of in the development of organic farming research: pioneer farmers and scientists, pioneer private research institutions, organic farming chairs and universities, and organic farming projects and institutes at state research institutions. {8}

During the 1980s public funding for organic agriculture research started to become available in Europe. Estimated national financial input into organic farming research in some countries in European Union (the estimate is a minimum based on targeted organic research programs that does not include, for example, professorial appointments in organic agriculture). Forecast on 2005-2010: Austria 1,5; Denmark 7; Finland 2; France 5,7; Germany 7; Italy 2; Netherlands 8; Norway 2; Sweden; Switzerland 15; United Kingdom 3,9; Total 60. At the same time in USA, the United States Department of Agriculture started funds for organic research is aimed at helping farmers to increase the production of high quality products with decreasing costs.

2. Organic farming and extension education

Evaluation of educational opportunities made in the context with growing organic food production and marketing sector. In Europe, the annual growth in organic farming areas ranges from 10% till 30%, depending from the country. The percentage of retail sales of organic food as a part of total food sales in some EU countries next: France, Italy, Netherlands, Sweden and United Kingdom had 1% in 2000 year, Germany 1,5%, Austria 2%, Switzerland 2,5%, Denmark 3%. (8)

While the organic food sector was traditionally dominated by small and local processing and distribution companies, now there is strong interest in the organic food business from largest and multinational corporations. Support for increased education from the national political levels reflected this increase in importance in the market place and in large corporations.

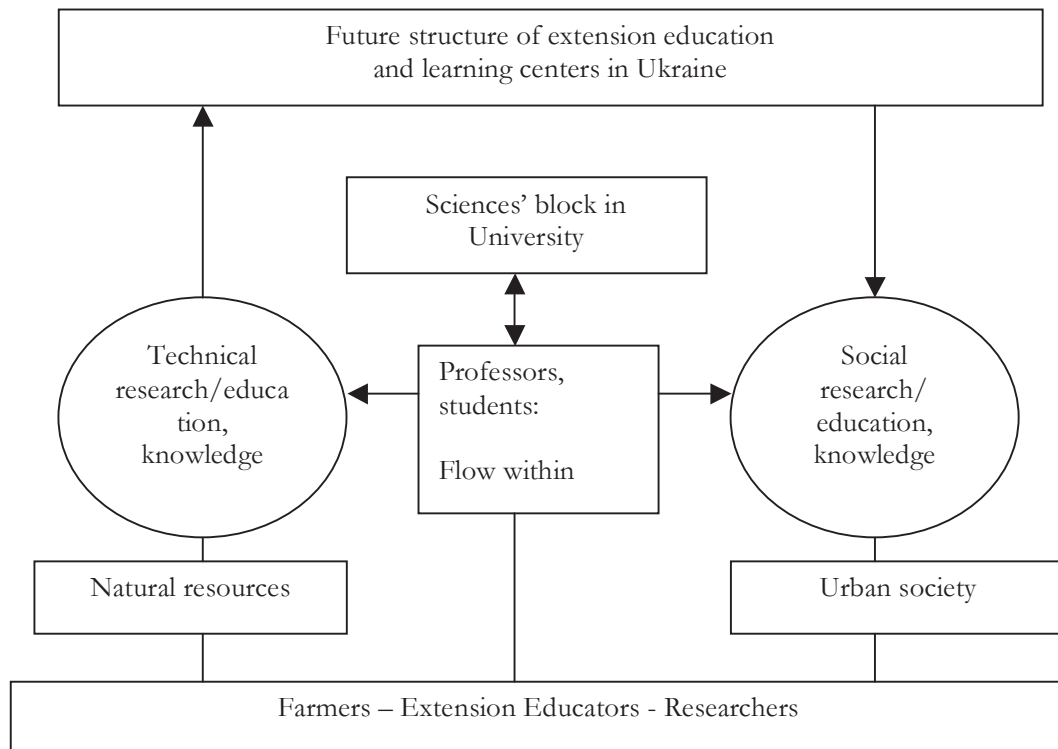
In my point of view, future extension education activities in Ukraine in organic dairy farming and marketing should create flexible teams from specialists interdisciplinary areas to be responsive to new challenges in society (figure 1). There are two-way communication between those who work in university and those in society. They are organized in teams that include various specialists, and all become familiar with the tools, skills and vocabulary needed to work in disciplinary teams. The emphasis is on team work, practical problem solving, working with clients. This model is not for study of organic farming and food systems, but also relevant to more general.

What is extension adviser needs to know working with dairy farmers:

1. The evolution of dairy marketing in Ukraine
2. Domestic market trends: production and consumption trends, price trends.
3. Different marketing channels available for small scale dairy farmers

4. Requirements to enter marketing channels
5. contact numbers of milk producer organizations and other important role players
6. Consumer preferences for milk
7. Contact numbers of organizations who teach value adding techniques
8. Different business models available to small scale producers.

Figure 1. Structure of future active learning through extension education (including communication in different disciplines, also connection between natural resources, urban society and farmers)



Strategies for dairy producers

1. Sell direct to consumer (local market):
 - Opportunity: Consumers like to buy fresh milk direct from producers because then he know the origin of the milk. Producers build up relationship with local consumers
 - Weakness: Market can be small and is easily saturated.
2. Sell to retailer:
 - Opportunity: Sell to a small café, street vendors or supermarket. Many of these buyers exist. Shortening the milk chain can increase profits.
 - Weakness: Higher risk, higher capital requirements, needs sound relationship built on mutual trust with retailer.
3. Sell to processor:

- Opportunity: since deregulation the number of milk processors has increased dramatically. Willing to receive milk from small producers.
 - Weakness: Needs critical mass and high hygiene standard
4. Value adding through processing:
- Opportunity: High demand for products such as sour milk, yoghurt, cheese, etc
 - Weakness: Market knowledge, training and investment needed.
5. Value adding through packaging:
- Opportunity: Put milk and other products in attractive and functional packaging
 - Weakness: Market knowledge, research, training and investment needed.

The real dissimilarities between conventional and organic livestock farming promote different research objectives. Organic farming is strongly related to environment in which it operates, the research objectives of organic animal rearing are different for each region and are applied to management livestock farming system. A comparison of technical characteristics between conventional intensive and organic dairy farms in French Holstein herds (Table 1). {4}

Table 1. Comparison of technical characteristics of intensive and organic dairy farms in France (Primiparous Holstein animals)

	Intensive	Organic
Labor force	2	1
Milk quota (1000 l/year)	254	190
Number of dairy cows	32	35
Hectares of farm land	35	37
Hectares of “forages”	27	37
Maize silage + fodder beets	44	0
Milk (l/ha/year)	7260	5130
Fat corrected milk/cow/year	8900	6000
Days of pasture (100% diet)	82	141
Concentrate (kg/cow/year)	1150	570
Concentrate (g/kg milk)	128	95
Feeding costs (Euro/1 milk)	20.4	19.3
Nitrogen balance	105	55
N (kg excess/hectare/year)		

The quality of milk can be expressed through somatic cell count in the tank. Somatic cell is the level of stress of cows and udder disease, mainly mastitis (Table 2), {4}, for a comparison the Ukrainian standards of the raw milk (Table 3). {6}

Table 2. Number of somatic cell counts in the tank as percent of samples. (France region)

	Cell count (* 10 ³ /ml)		
	<300	200-400	>400
264 herds, certified or in accession (%)	45%	44%	12%
Conventional herds (average %)	46%	40%	14%

Table 3. The Ukrainian standards of the raw milk

	Standards 3662-97		
	High quality	1 Class	2 Class
Acidity, %	16-17	18-19	20
Bacterium's, thousand sm ³	< 300	< 500	< 3000
Somatic cell, thousand sm ³	< 400	< 600	< 800
Thickness, kg/sm ³ gr/litr	1027		
Protein, gr	3		

The growth of organic agriculture and markets during last decade has been accompanied by complexity of private sector standards of government organic regulation. A survey by the International Organic Accreditation service shows that 56 countries are at same stage of regulation the organic sector. The European Union defined organic farming in two regulations: 2092/91 and 1804/99. Guidelines and Standards has been produced by FAO (Food and Agriculture Organization), IFOAM (International Federation of Organic Agriculture Movements) and CAC (Codex Alimentarius Commission). Ukraine still haven't own organic livestock regulation. Farms that specialized on organic production can to get certification from foreign organization. Ukraine harmonized and implemented around 70% national standards on regular foods and still on the way to continuing that process.

The Ukrainian agriculture should to take for attention of European Union and USA experience in the developing of organic milk production. There organic foods and farming operates on many levels, and has pioneered some new ways of food production that are now becoming the norm. There are several levels of production at which value is added. Every stage controlled and monitored to ensure that organic standards are maintained from the farmer's field through to the final consumer: production; post-harvest processing; packaging; processors; contract processing. {3}.

Put all that together, Extension of organic dairy marketing should be focusing on the next:

1. Developing the organic dairy market through informing and educating consumers
2. Improve vertical integration in chain management in dairy industry
3. Improve spreading system of information about organic production around farms and consumers
4. Developing the organic milk market

Extension Educator should assert also for the following important moments in organic livestock farming:

1. Animal for slaughter must be raised under organic management from the last third of gestation.
2. Producers are required to give livestock agricultural feed products that 100 percent organic, but may also provide allowed vitamin and mineral supplements
3. Organically raised animals may not be given hormones to promote growth or antibiotic for any reason. Preventive management practices, including the use vaccines, will be used to keep animals healthy
4. Producers are prohibited from withholding treatment from a sick or injured animal; however, animals treated with a prohibited medication may not be sold like organic
5. All organically raised animals must have access to outdoors, including access to pasture for ruminants.

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ORGANIC AGRICULTURE AS A COMPETITIVE ADVANTAGE IN THE DEVELOPMENT OF ALBANIAN AGRICULTURE

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Keywords: Organic farming, certification, SWOT analysis.

1. The Albanian agriculture setting

Nearly 20 years after transition, the issue of “Albanian transition” seems to be partially unsolved. But during this period the issue of transition process has turned into an enduring dilemma not only for Albanian economists but also for international ones. Since the last agrarian reform of 1991, Albania has gained a new aspect over land property, yield organizing and farm size. Hence, more than 504.000 ha have been distributed to farmers and about 400.000 small size private farms from 0,6 ha to 3 ha have been set up. Although the law said that the land had to be distributed equally according to the number of the family members throughout the Albanian territory, the distribution was diversified because of geographical reasons and different fertility levels of the land among districts.

The Albanian farmers decide to diversify production systems according to environmental conditions. Being unable to specialize in a single sector, the farmer combines growing different kinds of crops and breeding livestock. In Albania, agriculture still contributes almost 23% to gross domestic product (GDP). This is the highest share within Europe. Probably the agriculture will continue to play a very important role within Albanian economy in the next years. Therefore it is reasonable, if not inevitable to consider agriculture in any strategic planning of the country's future development. Despite the importance of agriculture for the national economy, Albania is a net importer of agricultural products. According to the statistical Yearbook 2007 of MAFCP the ratio of exports to imports in total states is 1:8, (MAFCP, statistical yearbook 2007).

2. Organic agriculture in Albania

2.1. Structural and production data of organic agriculture in Albania

In Albania in 1997 it was created the Organic Agriculture Association, (OAA), in Tirana with the financial support of international donors and from the December of the year 1998 it is a member of IFOAM. Since in 2002 have been registered about 20 farms as members of OAA, out of which 7 farms cultivated medical plants, 4 farms with olives and 9 farms cultivated vegetables and fruit trees. In 2003 the number of organic farms resulted to be 40 and covered a surface of about 25 acres out of which 11 acres have been certified from international organisms according to the norms of EC and have realized also the export of these productions. At the beginning OAA carried out functions of the association of farmers which had adopted the organic method of cultivation, assistance and technical advice, and the control and the certification of organic farms. Later, being many roles for a single association, with the risk of the manifestation of the conflict of interest, in 2006, OAA maintains the role of the association of farmers, and it is created BioAdria that deals with the technical advice and Albinspekt that deals with the certification of the organic.

Since 2006, Albinspekt provides in the Albanian market a complete service on inspection of organic products and food quality systems according to National, Private and International Standards; information regarding inspection/certification procedures for organic farms/products, information on exporting regulations of other

countries. The only inspection and certifying body that is accredited for certifying according to the Albanian law No. 9199; date 26/02/2004 on producing, processing, certifying and trading of Bio Products.

In 2004 was certified the first farm with about 750 ha with the production of mushrooms and medical plants in the region of Tirana. In 2005 the certified farms according to the international standards (regulation of EU 2092/91, Bio Suisse) are 11 and occupy a agricultural surface of about 58 ha in the region of Tirana and Kruja. Later, two farms have managed to get the certificate of the processing of organic oil extra vergine, one in Tirana, which production has been exported in the Swiss market for two years, and the other in Vlora. Other certification organisms that operate in Albania are “IMO” from Switzerland and “Ecocert” from France that have certified productions of medical plants of several farmers. In October 2006, according to Albinspekt, the farms included in the project SASA (*Sustainable Agriculture Support in Albania*) were 59 and two branches, one of olive oil processing in Tirana and one of the wine in Durrës (table 1).

Table 1 – Main characteristics of organic farms, 2008

Product	District	Certifying bodies Albinspekt (1) Bio.inspecta (2) Icea (3) Spanish cooperation (4)	Number of farms	SAT (ha)	Organic SAT (ha)
mushroom, medicinal plants	Tirana	(1) & (2)	1 ^a	750	-
chestnut	Tropojë	(2)	1	1.750	-
medicinal plants	Tirana	(1) & (2)	1	2,5	2,5
olives	Tirana	(1) & (2)	5	17,8	17,8
olives	Kruje	(1) & (2)	1	3	3
olives	Vlore	(1) & (3)	1	37,5	37,5
vegetables	Lushnje	(1) & (4)	6 ^b	1,2	1,2
vegetables, fruits, olives	Tirana	(1)	17	44,63	44,63
apples	Kavaje	(1)	3 ^c	1,5	1,5
vineyards, apples	Fier	(1)	4 ^d	2,6	1
vegetables, fruit, olives	Durres	(1)	6	10,3.	10,3
vineyards	Skrapar	(1)	4	3,16	3,16
pears	Pogradec	(1)	2	3,8	3,8
vineyards, vvegetables	Vlore	(1)	10	n.a	n.a
Total			61	2.617,69	126,39

Source: Direct elaboration of the data of Albinspekt, 2008.

* Organic farm in the region of Tirana certified by Bio-Inspektra (Switzerland) exporting dry mushrooms, with a surface of 700 acres of forest, taken for use by the state for the exploitation of secondary productions.** The surface belongs to two farms and is not available for the others.

*** The surface belongs to one farm only, there is no data for the two others.

**** The surface belongs to two farms, for the two others this data is not available

The sale of organic productions is realized in Tirana in the shop “Natural & Organic” and in several open markets, and lately the organic productions have been presented in different cities through the Fairs. In the Albanian market, the organic productions, certified before by OAA and now from Albinspekt, are sold with the logo of OAA. The members of the associations that deal with the organic have been trained by the experts of FiBL (Switzerland), Avalon (Holland), USAID (USA) and OXFAM (Great Britain). It is right to say that many farms cultivate according to the organic method in Albania because of the high prices of fertilizers and pesticides, through the production system “*low input*”.

3. The perspectives of organic production in Albania

The development of the demand of organic products has determined a considerable growth of the imports of products with extra communitarian origin in the European market. The imported product is not presented by cultivations that are not realized anymore in the European territory. The market seems to be more oriented toward the import of grain from Eastern Europe and productions of fruits and vegetables from Mediterranean places. We can say that even in countries like Albania exist the basic conditions for the spread and commercialization of organic products. This potential shall be exploited in the function of the perspective of the development of organic agriculture. Acting in this way would verify a growth in the export of agricultural products toward the countries of EU, without forgetting the actual difficulties of the sector and the expensive certification, (Leksinaj et al, 2008).

The opportunity for a better enter in the domestic markets is as much desirable as the commercial exchanges between Albania and other countries for development. Other shortages that need priority have to do with the right of information of the market and promotional information given by the institutions and the transparence of the standards of the process and productions by the farms. The overcome of these difficulties would make economically more convenient the exploitation of competing advantages. Below as a summary we have described the situation of organic potential farms *SWOT analysis*. The points of strength and weakness for the farms along with the opportunities and threats of the market of “organic” made obvious by the environmental analysis have been selected and presented in table 2 in order to have a fast summary of the problems in order to solve the application of production strategies and marketing. The variables taken into consideration are the fruit of the common work and experts of the direction of Albanian farms. The different activities are connected with the strategic efficiency of farms even though they are now in embryonic condition. There exist the general conditions in favor of the objective “the achievement of a higher margin from the organic productions in the market, especially in the European market”.

4. Conclusions

The organic agriculture presents a model of agriculture that is able to play an important role for the protection of the territory, thanks to the special relation that exists between the farmer and the farm. In fact, the attention goes to the research of systems that allow the rationalization of the use of the resources of farm that presents the case of organic agriculture as a principle choice that goes beyond the pure economic profit and that identifies the protection of natural biological cycles.

In the recent years the growth of the surface with “organic” is a sign of the growth of interest, stimulated by different contributions at the disposal of EEC that have urged many farmers to pass from conventional agriculture to the organic one. It is necessary the promotion of the distribution of the techniques of organic cultivation, and on the other side it is necessary the technical assistance of the farmers “bio” in all the phases, of the production and sale of production. Thanks to this assistant activity, it may start a relation, desirable by the farmers “bio”, of the change of information between the main actors of the sector. It is necessary to have knowledge about the territory, actors and existing networks (not only the economic ones). Local and communitarian networks deserve attention, to understand the roles they actually play, and to understand the policies that shall be applied.

Table 2 - SWOT analysis

Strength points	Weak points
Full integration opportunities in production branches	Farms of small size
Low cost of labor force	Lack of a control system of standard quality
Favorable environmental conditions for “organic”	Difficulties in the identification of clients
Organizing abilities	Difficulties in the identification of appropriate commercial network
Great opportunity from European markets	Difficulties in the segment of the supply
Potential Leadership in the domestic market	Lack of <i>premium</i> price
Availability for innovations	<i>Packaging</i> of promotional instruments not appropriate
Family traditions	Difficulties to maintain accountable data
Threats	Opportunities
An image not well identified image of Albania as an organic food producer	Demand in rise
Barriers in export because of certification	Possible synergy between farmers
Competition between farms for the best image	Availability to access the market
Technological innovations	Profits in the market
Lack of internal referencing	Differentiation of price
Commercial agreements	Availability of the service of technical assistance

Source: Direct processing data.

It is non realist if thought that the productions and their processing that are necessary for the organic agriculture can be done totally by the farmers if they are not assisted by different international organizations that currently develop their activity in Albania. It shall be taken into consideration that the agricultural sector in Albania seems poor because the great process of migration and displacements that have deprived it from important human and financial sources. Those who turn toward the “organic” need special attention through the policies of public support and all the actors present in Albanian local systems. A very important role play also the economic actors outside the sector, national and foreign ones. The latter shall be seen as the ones that bring the capital and especially the ability, experiences and relations.

In this work it is proposed the determination of the condition on the current situation and are determined the basis of the elaboration of a policy in order to adopt in this sector in the coming years, and to secure at the same time, a general strategic framework of the contribution of organic agriculture with the Common Agriculture Policy.

In order to secure the stable development of such a sector in the market it is necessary to keep the balance between the offer and demand. It is necessary the presence of initiatives that pay attention to the expectations of consumers, that shall take more careful information on the positive effects of organic products, for the environment and for the consumers themselves. At the same time it is necessary the provision of the regimen of control as a whole.

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ANALYZING ENVIRONMENTAL ECONOMIC FACTORS INFLUENCING THE SUCCESS OF FARMERS

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Keywords: Entrepreneurship, greenhouses, economical factors, success.

Abstract

The purpose of this research has been to analyze how environmental economic factors influence the success of agriculture entrepreneurs in Iran. Qualitative methods of research have been used.

22 entrepreneurs with greenhouses, 9 experts involved in extension and development of greenhouses, employed at the Ministry of Jihad-e-Keshavarsy and 8 agents of agricultural extension centers were selected and studied through interview.

Triangulation was used for the validity of the interviews. Qualitative data was analyzed through extracting and categorization statements of interviewees.

Findings indicate that environmental economic factors are influencing the success of the horticultural greenhouses enterprises in Iran.

PARTICIPATORY, COLLABORATIVE AND INTEGRATED SCHEMES IN TRAINING PROCESS AND SKILL TRANSFER

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Keywords: Sustainable agriculture, participatory knowledge system, agriculture extension, social network.

1. Introduction

The transition from a productivity-based agricultural model to the current one, that places emphasis on the environmental sustainable agriculture and takes inspiration from the relationship between human and nature, involves system-wide adjustments that go beyond the development model strictly meant and need appropriate tools in support of change.

Tools do not only concern the technical aspects, no matter how important, but also the strictly relational or social aspects that are related to the transfer of knowledge from one level to another of the stakeholders' network.

One of these tools concerns the systems that turn new knowledge into actions, in other words, how the information and innovation produced by the scientific world are used by the decision-makers or by the other stakeholders. That translates into the adoption of communication structures suited to mutual understanding, into the ability to properly transfer information as well as into the implementation of the mediation the system needs in order to be effective. A system is effective insofar as it is capable of improving the information it produces in terms of salience, related to importance of the needs assessment, the credibility that involves the scientific appropriateness in terms of technical evidence and arguments, and the legitimacy, i.e. the perception that the information and techniques produced have respected the stakeholders' values and beliefs. The functions that most strengthen the transition from knowledge to action are communication, translation and mediation. For communication to be effective, it must be active, iterative and inclusive. Translation means means the ability to create a shared lexicon and language so as to pull down the barriers that might get in the way of communication in terms of different skills of expression or any kind of bias. Salience, credibility and legitimacy may be differently prioritised, depending on the stakeholders, and this can cause conflict. Therefore, mediation is required in most cases, as a facilitator of communication and for the development of a shared language, but it is even more so as a necessary compromise between the priorities of each stakeholder (Cash et al, 2003).

Another tool concerns the learning processes that must be set off for change to be implemented. The transition to an eco-sustainable agriculture involves the transition from a top-down approach to a decision-making process by mutual consent based on the negotiated arrangement of different interests and the social learning of new perspectives shared by both institutions and networks. An eco-sustainable agriculture demands changes, not just within the producer but also within the institutions it deals with. The acquisition of innovation and the implementation of change, especially in terms of eco-sustainability, is eased by those learning systems that are based on participatory approaches and appropriate supporting policies. As it involves stakeholders that have different interests (economic, environmental, political, etc), different goals (quantity, quality, control, efficiency, equity, etc.), different levels of responsibility (corporate, local, administrative, etc.), participatory learning is a complex process which may be time-consuming. In addition, learning an eco-sustainable approach to production is more effective when it happens in small groups or through field lessons (Röling, 1998).

Other important aspects to be considered are the social relations inside and outside the networks which subjects we have named before. The maximum learning potential of the networks could be expressed when high are the internal social ties (cohesive networks) and the external social ties (open networks). (K. Knickel et al, 2009).

From this perspective, integration between the research world, the assistance services and the farms can provide innovative solutions, capable of facing the challenge of change, by producing operating and adaptive patterns that are more horizontal, more based on cooperation, on networking and on the horizontality of the training and knowledge-transfer processes.

This paper illustrates a local research project aimed to find a cognitive basis, formalised through a shared language and made of existing implicit and/or encoded knowledge on cross-compliance, and to develop an integrated, joint communication action, capable of strengthening the local relational networks.

This project was built around the following principles:

- Participation: by sharing and exchanging information and knowledge in a joint learning;
- Cooperation: by individual skills outing within a framework of activities and actions;
- Promotion of knowledge: through the full promotion of expertises of varying extents and contents, resulting from corporate practices, within-farm extension and the research world.

The project involves creating a local agro-environmental platform, capable of binding together, through a participatory work, the field practice, the interests of the different stakeholders in the primary sector, and the local research facilities dealing with cross-compliance. The purpose of the *agro-environmental platform* is:

- To strengthen the consistency, role, reputation and services provided by agriculture to the local system;
- With a view to integration, to promote forms of joint learning among different stakeholders from different backgrounds;
- To develop information and operating platforms capable of responding to the training requirements in terms of cross-compliance.

The platform is completed by the identification of *test farms*, capable of providing explicit examples of cross-compliance to the rest of the local farms.

2. Methods

The project was carried out in three separate but closely integrated stages:

- *Training stage*, which involved operating, technical and scientific world (agro-environmental platform) in 5 theme focus groups (in different areas of cross-compliance: health and safety at work, animal health, animal welfare, food safety, environment) aimed to gain a better understanding of the scientific expertise and operating problems behind the application of the principles of cross-compliance to farms, and a one-day training course on the techniques of group management;
- *Assessment* of the application of the principles of cross-compliance. 25 test farms were selected (one for each organization provides extension in the area) through which select and track the information deemed necessary for a proper development of cross-compliance, information which was discussed and explored within the agro-environmental platform for the development of training and information materials;
- *Organisation of local focus groups* in 5 local farms (test farms) to extend the debate on cross-compliance, to socialise the wealth of information acquired within the agro-environmental platform, and to collect case-studies on problems relating to the application of cross-compliance.

The method used at each stage was a qualitative survey technique, also known as focus group. A focus group may be defined as a survey technique for social research, based on discussions in small groups, under the guidance of one or more moderators, focussed on a subject that has to be fully investigated (Carrao, 2000). Such

technique is particularly suitable to gain a better understanding of the motivations, behaviours, opinions and attitudes of a group about the subject at hand (Disanto et al, 2006)

The focus groups met at set dates and worked on the basis of a shared procedure (Zammuner, 2003). The focus groups were composed of members:

- Who had a specific, year-long experience in the subject at hand;
- Who had good relational skills;
- Who had complementary skills so that they could integrate their professional skills within the group.

The members of each focus group worked together (under the coordination of a moderator) at the same time and in the same physical place, thus increasing their cooperative and supporting behaviours.

3. Results

This project led to the development of a set of products. In particular, based on the results of the 5 theme focus groups, it produced some cross-compliance checklists, which may be used by the staff in charge of a farm's technical extension. In addition, it produced some information material: a brochure on cross-compliance, to be used as an information tool within farms; some self-assessment frameworks that farms can use to test their compliance with cross-compliance standards; an information leaflet for the local community with a questionnaire to rate their knowledge of cross-compliance (which was tested during a local event).

In addition to the educational materials on group-management techniques, a number of events was arranged in order to improve communication among people interested in cross-compliance: six travelling panels displayed at the local markets, illustrating the different aspects of cross-compliance; a 45-minute video to be broadcasted on TV four times, one TV show involving all the project partners, a test farm and a local consumer.

As shown by the assessment stage (performance assessment and relational network analysis) covered by the project, the research had some innovative aspects compared to past actions; they include, in particular:

- Detailing and adoption of appropriate, shared working methods by developing specific materials for an easier and more proactive involvement of the participants;
- Definition of monitoring and assessment actions capable of illustrating the management process and its interim and final results;
- The participatory, shared approach to the project, involving separate but integral expertises and professional skills;
- Establishment of places for discussions and presentations (agro-environmental platform and test farms), which will ensure the continuity of the project even after its intended completion.

In addition, the project helped the participants to achieve a close, effective cooperation aimed at implementing actions for promoting not just communication among farmers, but also to differentiate the information/training opportunities provided.

However, addressing such a wide, complex subject, as the definition of actions to be taken in terms of extension, for the proper application of cross-compliance within farms put some difficulties and limitations:

- The existence of internal constraints due to the different/diverging interests inside the agro-environmental platform, which sometimes reduced the effectiveness of the communication and knowledge-transfer process;

- Problems defining a shared language among the stakeholders. The focus group was enriched by extremely different expertises and professional skills; however, to make the exchange useful, it was essential that the terminology to be used at the operating stage should be clear;
- The existence of different biases, which reduced the attendance of the institutions at meetings and knowledge exchanges;
- Problems moving from a top-down approach (which is traditionally typical of the technical extension systems) to a decision-making approach by mutual consent based on the shared arrangement of different interests (system approach, K. Knickel et al, 2009);
- The need to improve the training on group-management techniques, in the attempt to find a moderator that could be, at the same time, the organiser of the discussion, the mediator of the negotiations, a motivator able to encourage group dynamics to emerge, and an inspirer (Proietti et al, 2007).

However, the wealth of ideas expressed by the members of the focus groups was a sign of the liveliness and energy that the primary sector is experiencing, as well as being evidence of the powerful tendency to renewal that farms are exposed to, in terms of cross-compliance.

4. Conclusions

The project achieved the following specific goals:

- It developed a joint communication action capable of strengthening the local networks among the farmers, the stakeholders dealing with the primary sector, the research facilities and the local community, by creating multiple opportunities for meeting and exchanging ideas;
- Helped the local farms respond to the current changes, by producing information and working materials in support of the change-management process;
- Helped the farms and the local community interact on agriculture through information materials that were handed out in the places where they met the local community or were aired on TV;
- Located some test farms capable of setting effective examples to the rest of the local farms in the field of cross-compliance.

Actually, the experience was an excellent opportunity to test:

- Cohesion between the local advisory, assistance and socio-economic support policies;
- Feasibility of training/communication/dissemination processes targeted to different user groups;
- Use of innovative joint communication tools.

The partnership underlined the need to set up a joint communication process focussed on a number of factors: complexity: by relying on a wide range of tools; flexibility: by planning a wide range of actions aimed to specific needs of different user groups; participation: by involving in these actions (planning and development) a network of different stakeholders, who have different skills; coordination: through exchanges and interactions between different stakeholders in the networking process; integration: by relying on the definition of complex projects.

Apart from the specific project that this work managed to develop, it is also essential to acknowledge the importance of the experience as an opportunity for offering a participatory learning space. It was an opportunity to strengthen mutual understanding between the participants and improve their ability to create shared projects.

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CHANGE AGENT PROFESSIONAL COMPETENCIES RECOGNITION IN MINISTRY OF AGRICULTURE (CASE STUDY ILAM PROVINCE)

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Keywords: Change agent, competency, Iran.

1. Introduction

The change agent is the central core of all extension's activities. Karami and Fanaei believe (1994) that change agents are foundation of extension system. Extension planning and performance of educational programs are related to an effective agent.

Many terms have been used to describe change agents, such as: "coordinator" "manager," "director," or "administrator" (Boyd, 2004). Competencies were defined as knowledge, skills, or abilities required for the job (Cooper and Graham, 2001). According to Lionberger and Gwin (1995), change agents or extension agents help farmers by education, to increase their production and secure a better life. They have variety roles such as transferring information, pay attention to the farmer problems, making motivation, facilitating and acceleration of acceptance process, making relationship with agencies, increasing management ability, skills teaching, collaboration, program implementation, support to local Leadership, establishment of organizations, etc.

County Extension agents often lack the competencies needed to be effective administrators (Boyd, 2004).

According to Mosher (1981), a good change agent not only should be aware of agriculture technique, but he / she could understand village's people. Prawl et al. (1984) believe that successful change agents not only should understand rural people and their problems, but it is necessary to have information about quality of extension education. Okolli and Garsforth (1990) state that personal skills and knowledge are necessary for change agents and they classify knowledge in four groups: organizing, planning and making relationship, search and analysis, being initiative and leadership. In other hand, they need to have ability in writing reports and giving a lecture. According to Lionberger and Gwin (1995), a successful change agents should have at least following characteristic: ability to establish relationship with farmers, to provide proper conditions for farmers and to diffuse government policies and procedures.

Boyd (2004) state that personal skills, management skill and organizational leadership are necessity for change agent.

Swanson (1991) introduced some cases which are necessary for agricultural change agent, such as enjoying formal education about his / her activity, having practical experience or skills in agriculture and related subjects, having ability to cooperate with rural persons and to help young and adult in village so that they understand methods at local level.

According to Patel and Liegans (1968) some competencies are as important as in effective role of change agents. These skills include duties such as: research, analysis, appraisal, finding problems and solving them, management and leadership planning and development of extension programs, to inspect the farmers at home and using extension methods effectively and properly.

According to Rogers and Shomeker (1990), successfulness of change agent have a positive relation with: change agent's efforts, support of clientele in compare with support of a institute which want to change the rate of

homogeneity, the rate of his / her utilization from leaders thoughts and the rate of his / her professional validity for clientele.

Miller (1973) emphasizes that change agents should be able to realize past times and defend their programs, they should show reaction to problems when it is necessary, and identify people's invisible needs and create relationship with research centers and people .

Gregg and Irani (2004) suggested that shift in the way Extension agents conduct their jobs and a potential change in the way Extension outreach is delivered. Agents still spend time in face-to-face interaction with clientele., change agents may also be using information technology to facilitate routine communication and information dissemination (to their clientele).

Results of Mirrahimmy (1995) in his study - which collected data and classified educational - professional needs of change agents in it -, report results of his research about basic educational needs of agricultural change agents in Fars province as follow: methods of relationship with different class of rural society, providing extension program goals and determining farmers educational needs.

In the future, the success of extension programs will be determined to a large degree by the ability of the Cooperative Extension Service to keep highly qualified agents (Cooper and Graham, 2001).

2. Method and Materials

The research procedure to identify professional competencies of agricultural extension agents was that of the survey method. The populations of the research were the change agents of Jihad- keshavarzi organization in Ilam province. The number of change agents in 2006 was 71, so all the change agents were considered in this study.

To achieve this purpose, the following ten aspects have been considered:

1. The current situation (what is) agricultural extension agents about performance competency
2. The current situation (what is) agricultural extension agents about management competency
3. The current situation (what is) agricultural extension agents about communication competency
4. The current situation (what is) agricultural extension agents about technology (instructional tools) competency
5. The current situation (what is) agricultural extension agents about educational (instructional design) competency
6. The ideal situation (what should be) agricultural extension agents about performance
7. The ideal situation (what should be) agricultural extension agents about management competency
8. The ideal situation (what should be) agricultural extension agents about communication competency
9. The ideal situation (what should be) agricultural extension agents about technology (instructional tools) competency
10. The assessing of the ideal situation (what should be) agricultural extension agents about educational (instructional design) competency.

To gather the data, the researchers used a questionnaire, consisting of two parts. the first part for identifying personal characteristics such as age, education, job experience and academic degree. the second part consists of 55 close-ended questions about professional competences. Among them 14 questions were about performance

professional competency, 15 questions were about management professional competency, 7 questions were about communication competency, 8 questions were about technology professional competency and 11 questions were about educational professional competency. In this method, the questions were first answered on a bank questionnaire and then they were scored according to that and then they were computerized.

The validity of the questionnaire was ascertained through face validity. In this study, to estimate the reliability of the questionnaire, we used the Alpha Cronbach method. The amount of reliability for the series of questions posed for assessing the research variables were as follows:

The performance professional competency 92%, the management professional competency 92%, the communication professional competency 80%, the technology professional competency 94% and the educational professional competency was 91%.

To analyze the responses the comparative and descriptive statistics like frequency, accumulative frequency, percent and mean were used. SPSS software was used for analysis of data.

3. Findings and Discussion

The results of the responses of the change agents to the characteristic questions have been reported at the table1. . The majority of respondents are males (88.7%). The majority of respondents (74.6%) indicated that their age fell between 31 and 50 years. Most respondents (71.82%) reported that their level of education are T.Tc and B.Sc..

According to previous literature and elicited information professional competency of change agents divided in five classes: performance, management, communication, technological and educational professional competency.

Findings show that the current situation of agricultural extension agents about performance, communication and management professional competencies are classified from middle to high level, educational professional competency from low to middle level and technology professional competency at low level. Results indicate that the rate of agricultural change agents in Ilam province classify necessity (ideal situation) of performance, educational and management professional competencies from high to very high level, communication and technological professional competencies in very high level.

4. Conclusions and recommendations

Respondents stated that agricultural extension agents are not competent to work with instructional tools like computer, internet, media and instructional design techniques such as charts, posters and workshops. We can conclude that competencies related to instructional technology are most needed for Ilam province agricultural extension agents. However, regarding standard deviation of the mean scores, it seems that there is a consensus about the respondents' belief about the necessity of skills which are necessary to work with instructional tools.

It seems that skills of agricultural extension agents at the all competencies are low to middle. Therefore, their need to education about all competencies and education is necessity for them. Agricultural extension agents stated that almost all competencies are necessity.

Table 1 - Number of Respondents by Gender, Age, and Level of education (no. = 71)

Characteristic	No.	%
Gender		
Male	63	88.7
Female	5	7.0
No response	3	4.3
Age Groups		
20-30	14	19.7
31-40	36	50.7
41-50	17	23.9
>51	2	2.8
No response	2	2.8
Level of education		
Less than Diploma	4	5.63
Diploma	13	18.30
T.Tc	27	38.02
B.Sc	24	33.80
M.Sc	1	1.40
No response	2	2.80

The rate of necessity is high to very high. Although respondent believe that technological and communication competencies are more needed and are on the top of the list. Regarding difference between current situation and ideal situation we can conclude there is a clear difference between all competencies. This result show a great interval between conditions for agricultural extension agents. With regard to this fact that performance, communication, technology, education and management professional competency of agricultural extension agents is in the middle to the low level, we recommended that educational workshop and in – service education be provided for agricultural extension agents about all competencies. One of the most important duties of agricultural extension agents is to present technology and innovation by communication to clients. Therefore, we recommended to agents to be up – dated because they have great shortage in this respect and this end reach only by repeated educations.

Extension is an educational process and change agent should be familiar with educational principles. For this important aspect and because of change agents` weakness about skills and educational elements, we advise to enjoy from pre – service and in – service education. Extension organizations should make the acquisition of those competencies a part of the employee's performance expectations. Extension organizations should make faculty development time and resources for the acquisition of those competencies a high priority as they allocate scarce resources.

Competencies identified in the study as most important for the success of change agents should be incorporated into in-service training, especially management and communication training for change agent.

Table 2: Comparison of professional competencies

row	competency	Current situation		Ideal situation		Difference
		Mean	SD	Mean	SD	
1	Performance (subject related)	4 /13	0/74	4 / 75	0/63	0/62
2	Management	4 /17	0/66	4 / 93	0/58	0/56
3	Communication	4 /26	0/66	5 / 28	0/46	1/02
4	Teaching aids	3 /39	1/08	5 / 01	0/62	1/62
5	Design of education	3 /66	0/61	4 / 90	0/35	1/24

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THE ROLE OF EXTENSION IN AGRICULTURAL MARKETING FROM THE VIEW POINT OF AGRICULTURAL SPECIALISTS AND PERSIAN MELON PLANTERS OF CITY GARMSAR

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Keywords: Agricultural extension, marketing, Persian Melon, extension specialists and farmers.

1. Introduction

Marketing is a process in agriculture which has drawn little attention; and since agriculture is still subsistence little attention is paid to marketing than other units of agriculture (Peykar Jou, 1999). Marketing can also cause a competition increase of agricultural production and stabilize the domestic market (The institute of studying the planning of agriculture economy, 2005). Being aware of the consumer and market needs, the agricultural society can adapt itself to environmental changing condition according to quality and time of offering products (Narayanan & Arandan, 1993).

Chizari and Joulaie (1997) believe that if there is marketing, there will be higher quality products for final consumers. Some theorists believe that product marketing in agricultural units should be on the responsibility of agricultural cooperative societies, but some others, like Reji & Esmeliy (2008) and Evensom & Mwaba (1998), classify it as a supportive service of governments. In recent years, because of the great importance of agricultural product marketing in agricultural extension, the role of extension and education as a developing factor has drawn so much attention. The extension roles in product marketing are as follows:

1. Changing attitudes and needs: In order to improve the knowledge level of farmers up to a desired level, extension must get through stages, such as a mental readiness, educating performance, educating self-reliance, educating the skill of participation, and finally organizing and cooperating with farmers. There would be no agricultural extension without educated farmers and essential knowledge for farmers. Therefore, developing this unit mainly means a change in human needs and attitudes which efficiently requires educating and developing human resources, in a way that some items, like preparing and identifying the coming changes, encouraging accepting responsibility, understanding and solving the problems, become the dependent solutions of this attitudinal change (Marsh & Pannel, 2001). Thripati (2003) also knows that the role of extension in this regard is developing the technical, organizational, managing, communicational, and occupational skills.
2. Knowing the price of products in markets: One of the basic problems is that farmers are unaware of the price, required products and market needs, which determine a loss not only for farmers, but also for final consumers. In respect of producing and offering products to markets, farmers need information on which they can decide what, when, how and how much to produce. So, knowing the prices of different markets and the possibility of getting to them is really crucial (Van Den Ben & Samanta, 2006, Rivera, 2001 & Worth, 2006). Agricultural extension should try to direct farmers toward interpreting and analyzing data, and using the required skills in order to complete his knowledge and broaden his view (Narayanan & Arandan, 1993).
3. The role of extension in crop selection: The most important source of receiving informal for crop selection is market and usual prices, regardless of country's needs, while the government's plans,

requirements of society, import and export should be taken into consideration. Narayanan & Arandan (1993) believe that most of the processes and activities should be under the support of marketing extension from the first stage of deciding what to plant up to consumer requests. Alex, Zijp & Byerlee (2002) also believe that extension has an important role in the continuous information of farmers;

4. Post harvest processes and determining the quality: At this stage, market extension prepares farmers for producing high quality products for markets. Increasing the quality of products requires an efficient management of organizations and preserving products during plantation and post-harvest processes, and extension plays a main role in this regard by presenting suitable technical information which can be effective in reducing the losses (Alex, Zipj & byerlee, 2002). Each process of post-harvesting, including transportation, producing , store-making, storekeeping, and packaging requires special skills which can be performed by extension (Asiabaka, 2003).
5. Markets, prices, and introducing extension: Passivity of farmers against markets is one of their problems in improving the agricultural economy. Marketing can be supposed as a natural or out-of-control process which can be controlled by knowledge and information. Marketing extension acquaints producers with the principles of marketing, and enables them to produce a kind of goods which is higher in quality, better in purchasing, and more acceptable in shape and appearance(Narayanan & Arandan, 1993).

2. Material and Methods

The present study used the descriptive, correlation and casual-comparative methods to compare the opinions of two groups of population. There were 4 dependant variables, including market selection by farmers, the role of extension specialists in marketing agricultural products from the point of view of farmers, different markets for products, and the role of extension in market management, market tendency, identifying market, and improving market products. Independent variables are of two parts. The first part includes some characteristics of the farmer, such as age, education, participation in educational-extensional classes, and the second one includes other cases, such as improving the quality of products, market management, identifying market, and market tendency which are considered as independent variables. 140 farmers , through Cochran method and 30 specialists through census were selected. The raw data were analyzed through descriptive statistics and parameters, such as frequency, cumulative frequency, and mean were calculated. The hypotheses were tested through correlation coefficient of Spearman, Man Whitney, and Kruskal Wallis formula with Spss Win16 Software.

3. Findings and Discussion

Most of farmers were in the age of 43 All the farmers were of high-school or under-diploma education which shows they are fairly educated (PS=24.5). This fact indicates that it is not impossible to expose them to higher education. The mean of the farmers' experience in farming was 20 which reveal the high level of experience, i.e. 16-20 and 26-30, in planting Persian melon. The highest frequency of the field under plantation was for 6-10 hectares group (42 persons), the mean was 11 hectares, the lowest 1 and the highest 25 hectares. About 29% (41 persons) of those who answered the questions never and 50% of them little and very little participated in educational-extensional classes. The main reason may be that government is not supporting the required classes especially those which are related to non-strategic products, like Persian melon. About 77% of all those who answered believe specialists had rarely helped them in marketing issues. Most important source of farmers information about marketing are other farmers (PS=3.72); now that, government has rarely invested on such products, farmers try to solve problems on their own and other's experiences. Other subunits, also, as extension specialists, research and advertising departments have had a small share in this regard.

Table 1: Summary of correlation data between dependant and independent variables

independent variable	dependant variable	correlation coefficient	level of significance	result of test
farmers' age	market selection	0.0105	0.9125	-
participation in educational extension classes	market selection	0.0937	0.0365	-
farmers' age	role of extensional specialists in marketing	0.7021	0.000	+
level of education	role of extensional specialists in marketing	0.2988	0.652	-
participation in education extension classes	role of extensional specialists in marketing	0.4111	0.000	+
level of education	role of extensional specialists in marketing	0.7001	0.000	+
participation in educational extension classes	different marketing	0.0498	0.652	-
marketing skills	role of extension	0.8765	0.000	+
marketing management	role of extension	0.0289	0.670	-
marketing	role of extension	0.6981	0.000	+
improving product quality	role of extension	0.5001	0.000	+

- : $p < 0.05$ + : $p > 0.01$

The mean of the specialists' age and experience was respectively 37 and 14 years, that represents they are practically experienced. About 75.2% of specialists had little familiarity with knowledge and skill of marketing. The analysis of correlation, (table1), indicates there is a positive meaningful relation between the variables of the level of education and the rate of farmers' presence in educational-extensional classes and the variable of their attitudes toward the role of extension specialists in marketing with 99% level of significance. There is also a positive meaningful relation between the level of farmers' education and the availability and use of identifying markets, market tendency, and improving the quality of product and the role of extension in marketing.

No relation has been observed between the age of farmers and the rate of their participation in educational-extensional classes (considering not holding the marketing classes) and market selection, between participation in educational-extensional classes and the different markets, as well as the age of farmers and their ideas concerning the help of extension specialists in Persian melon marketing.

In terms of the influence level of dependent and independent variables, it has been found that market selection has been influenced by farmers' educational level and their main jobs were of no influence in this case; however, their main jobs are of great influence to their ideas concerning helping extension specialists in Persian melon marketing. Comparing means indicates that between the ideas of farmers and specialists about the possibility of

playing the role of extension in Persian melon marketing ($u = 1489/5$, $p = 0/0311$, $z = -1/989$) and the ideas of farmers and specialists around using educational-extensional methods, no significant difference is seen ($u = 1804$, $P = 0/1099$, $Z = -1/468$). In addition, there is a slight difference between viewpoint of farmers and specialists concerning Persian melon marketing problems (including, lack of government support toward insurance delivery, loan and agricultural services, not having any required formations and cooperatives, deficiency in required information after production, not having appropriate markets, different sale prices, receiving necessary validity from dealers, pre-scaling production and the lack of technological ability in storekeeping). As a result, due to aforementioned experience explained in descriptive statistic, specialists can understand farmers' marketing problems in of melon ($u = 2112$, $P = 0/899$, $Z = -0/0514$).

Table 2 indicates the needs and shortages of farmers, according to having up-to-date marketing extension process. Hierarchy shows that the way of using and controlling chemical fertilizers and the knowledge of the interest of consumers with improvement are two important factors in melon production with respect to farmers' viewpoint.

Table 2: Distribution of farmers opinions for request of marketing education

The needs of farmers for education by extension specialists	Number of people	Standard deviation	Mean	Hierarchy
Quality way of using and controlling chemicals	140	0.975	4.00	1
Knowing the interest of consumers familiarity with improvement	140	.99	3.94	2
Knowing the suitable material for production	140	1.01	3.98	3
Familiarity with improving	140	1.14	3.56	4
Way of using basic material of production	140	1.12	3.49	5
Improving the method of offering products	140	1.48	3.46	6
Knowing store keepers	140	1.35	2.98	7
Suitable time of gathering products	140	0.97	2.11	8

According to this research, the followings steps are recommended:

1. Considering low information of extension specialists with this case, appropriate knowledge of different productions should be given to agricultural specialists and following teaching-learning process, the other technical training should be done.
2. It is recommended that specialists teach agricultural promoters different methods of marketing (planning for production and preparation of crops relevant to market and its needs, packaging, calibration, quality control, transportation, storekeeping ,etc.) and they afterwards teach these methods to farmers.
3. Since it seems that in current system of country extension, marketing is not done as regular programs, , it is recommended that a separate section in extension with marketing goal is formed.
4. Reconnaissance of the role of other organization and institution is recommended, because of presentation of suitable and realistic marketing designs in order to elaborate appropriate planning.

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A CONCEPTUAL MODEL FOR RETAINING HIGH-PERFORMING COUNTY EXTENSION AGENTS

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1. Introduction

For more than two decades, Cooperative Extension systems in the United States have faced chronic challenges related to employee turnover and retention (Church & Pals, 1982; Manton & van Es, 1985; Rousan & Henderson, 1996; St. Pierre, 1984). More recently, Kutilek (2000) found that in Ohio, “Turnover rates have remained around 7% for the total Extension staff, 5% for agents” (§ 17). Mowbray (2002) addressed the issue of job stress and turnover among Extension employees in Kentucky while Ezell (2003) did likewise in Tennessee. In 2005, the Extension Committee on Organization and Policy’s Leadership Advisory Council of the National Association of State Universities and Land-grant Colleges identified agent retention as a major challenge facing Cooperative Extension nationally. According to unpublished data compiled by North Carolina District Extension Directors (W. Sykes, personal communications, June 22, 2008), Cooperative Extension experienced overall turnover rates among county program professionals averaging 6.5% in fiscal years 2005-2006 and 2006-2007. The issue is especially critical in the 4-H program area where 31% of 4-H agents hired since January 2006 have already left the organization as of April 2009 (R. Dale Safrit, personal communications, April 2, 2009). As recently as this year, Strong and Harder concluded that even today, “Extension agents still continue to leave Cooperative Extension prematurely, despite the attention research has paid to the issue of employee turnover” (2009, 7).

More recent literature regarding employee retention relates to the workplace in general. Branham (2005) suggested “7 Hidden Reasons” why employees decide to leave a job, including: The job or workplace was not as expected; The mismatch between job and person; Too little coaching and feedback; Too few growth and advancement opportunities; Feeling devalued and unrecognized; Stress from overwork and work-life imbalance; and, Loss of trust and confidence in senior leaders. Lencioni (2007) described “three signs of a miserable job” including not being understood or appreciated by someone in authority; not knowing if your work matters to anyone; and, no tangible means for assessing if you are successful or failing in your work.

Turnover among county Extension agents results in disrupted educational programs, unmet citizen needs, low morale among remaining Extension professionals, and wasted financial and material resources dedicated to Extension agent on-boarding and in-service. In order to recruit and maintain the highest quality workforce possible, Extension administrators nationally need a contemporary conceptual model to describe and define potential reasons that Extension agents decide to leave the organization, and re-focus these reasons upon effective strategies to promote retention..

2. Methods and Findings

The purpose of this qualitative research was to objectively identify components for a conceptual retention model for county Extension program professionals (“program professionals”) including agents, program assistants/associates, technicians, etc. in Extension systems nationally. The authors used content analysis (McNabb, 2004; Thomas, 2003) to identify an exhaustive data list of potential components that could comprise

such a model. The constant comparative method (Glaser & Strauss, 1967) was subsequently used to summarize the data, combine similar data categories, and collapse the data into seven identified concepts that they subsequently labeled. To increase the rigor of the data analysis, the authors engaged a panel of experts consisting of eight members of the North Carolina Cooperative Extension Administrative Council who reviewed the categories and suggested minor revisions.

Seven identified concepts comprise the resulting R.E.T.A.I.N.S. conceptual retention model for county program professionals: Recruiting authentically; Expanding on new employees' experiences and abilities; Training, training, training; Advocating for both the employee and the position; Inspiring, investing in, and empowering employees; Nurturing connectivity among employees; and Showing appreciation through effective recognition.

Recruiting Authentically

The initial concept of the proposed model entails communicating realistically to prospective program professionals specific day-to-day responsibilities as well as critical cultural aspects of the Extension organization and specific workplace. Authentic recruitment addresses the increasingly important role of human resource recruitment and development in Cooperative Extension in making a substantial and lasting impact on sustaining the organization's competitive advantage through human capital recruitment and development (Barney & Wright, 1998; Holland et al., 2007; Wright et al., 1994). Boxall and Steenveld (1999) argued that organizations that invest resources in meaningful and sustained employee attraction gain extensive internal benefits and industry-wide advantages from the investment. Ensuring authentic recruitment is fundamental to the holistic success of the remaining six concepts of the R.E.T.A.I.N.S. model. In filling a vacant program position, Extension supervisors must accurately, truthfully and completely describe the work content, internal organizational context, and internal/external environments of the specific position so that an applicant may objectively assess whether the position is a good potential match for his/her current skills and abilities, and future aspirations.

Expanding on New Employees' Experiences and Abilities

This concept involves hiring program professionals who have substantial overlap between their personal needs, interests, and goals and those of the total Extension organization and immediate workplace. Program professionals who are passionate about their work, who enjoy the tasks they are assigned, and who work in an environment that supports their success are more engaged and thus more productive (Bunkingham & Coffman, 1999; Chang, 2000). Thus, Extension supervisors should hire program professionals into career paths that create a match between their personal/professional interests and the work they are responsible for completing. Once employed, program professionals need to know what is expected of them, and have both the materials/equipment needed to do their work and the talent to do what they do best. By aligning the right tasks to the right program professionals, Extension supervisors ensure that program professionals are challenged and enriched in their work (Braham, 2005).

Training, Training, Training

This concept involves providing both moral support and material resources for the continuous professional education (CPE) of a newly hired program professional so s/he may meet and exceed basic professional competencies (i.e., knowledge, attitudes, skills, and aspirations) needed to ensure professional success. Research suggests that organizations prepared to focus extensively on developing newly-hired talent through continuous training will be in a much stronger position to retain the most talented employees, thus becoming an employer of choice (Boxall & Purcell, 2003; Windolf, 1986). In times of fiscal retrenchment and budget crises, training is often the first budget item to be reduced or eliminated. However, in light of the critical role training plays in not only retaining quality program professionals but also developing the organization's overall human capital, training must be sustained, if not increased, during times of organizational change and upheaval. According to

Storey (1995), training is a, if not the, major element of an organization's commitment to employee development and retention.

Advocating for Both the Employee and the Position

This concept involves ensuring that an individual professional and his/her programming position grow and evolve together as both Extension's mission/vision and the program professional's needs/goals evolve. Numerous authors have discussed the need to expand an understanding of workplace expertise and how it co-evolves with physical and socio-cultural workplace environments (Bereiter & Scardamalia, 1993; Glen & Waddington, 1998). Grenier and Kehrhahn (2008) emphasized the importance of the continuous redevelopment of an employee throughout his/her career focusing in three major domains: content, constituency, and environment. Human motivation literature overwhelmingly suggests that during a work career, individuals continually seek new and expanded opportunities to grow both personally and professionally. Of even greater concern, employers often ignored personal goals and needs as they relate to the employee's job and career. While respecting privacy issues and boundaries, Extension supervisors must work more diligently to support and develop each program professional's total, integrated work-life ecology.

Inspiring, Investing in, and Empowering Employees

Extension supervisors must also dedicate individual time and energies to better understand each individual program professional to support him/her in developing and sustaining a workplace environment within which s/he thrives and succeeds. All employees need to feel a sense of accomplishment from their work (Connors et al., 1994). Lencioni (2007) stressed that even the most cynical employees need to see a connection between what they do in their work and the satisfaction expressed by someone significant in their life. Thus, Extension supervisors need to ensure that they consistently acknowledge specific moments of success by program professionals. In addition to ensuring a positive feedback system, supervisors need to align organizational systems to empower and reward employee contributions. An effective reward system must not only compensate employees through pay, but also through job promotion and intrinsic rewards.

Nurturing Connectivity Among Employees

Nurturing connectivity involves building strategic linkages between people and people, ideas and ideas, and people and ideas so as to strengthen each program professional's internal and external workplace environments. Fleming and Asplund (2007), Rath (2006), and St. Pierre (1984) each reported a significant improvement in retention among those employees who have at least one best friend in the workplace. Extension program professionals who feel a sense of belonging and who have a strong social network of colleagues at work are more engaged and less likely to leave the organization. Establishing systems by which these relationships can grow and flourish strengthens retention efforts and ultimately leads to even higher productivity.

Showing Appreciation through Effective Recognition

This final concept encourages using appropriate intrinsic and/or extrinsic rewards to effectively communicate appreciation to each program professional for workplace excellence. A recent survey of 10,000 employees of Fortune 1000 organizations found that 40% identified "lack of recognition" as a major reason for leaving a job (Gibson, 2008). To be effective, recognition must not only be an organizational strategy, but also be demonstrated as a personal philosophy by direct Extension supervisors. Brun and Dugas (2008) emphasized the growing need to refocus recognition in retaining today's most competent and talented employees in four main forms: personal recognition, recognition of results, recognition of work practice, and recognition of job dedication. In many ways, this construct serves to bring full-circle the proposed R.E.T.A.I.N.S. model, given that program professionals who feel appreciated and who were hired based upon authentic recruitment are more likely to want to expand their professional responsibilities and experiences, participate in meaningful training, and feel empowered and connected in their daily work lives in Cooperative Extension.

3. In Closing

The authors are currently using the conceptual model developed in this study to conduct a follow-up quantitative study among county Extension program professionals in North Carolina. Ultimately, the authors seek to revise and refocus R.E.T.A.I.N.S. as an empirical model for retaining county Extension program professionals that could be used to train mid-level and front-line Extension administrators and supervisors nationally on how to best attract and retain the most talented program professionals in county Extension programs.

The authors firmly believe that retaining the most talented county program professionals will increasingly become more critical to the strategic growth and success of Cooperative Extension nationally, as levels of physical and monetary capital remain stagnant or decline.

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